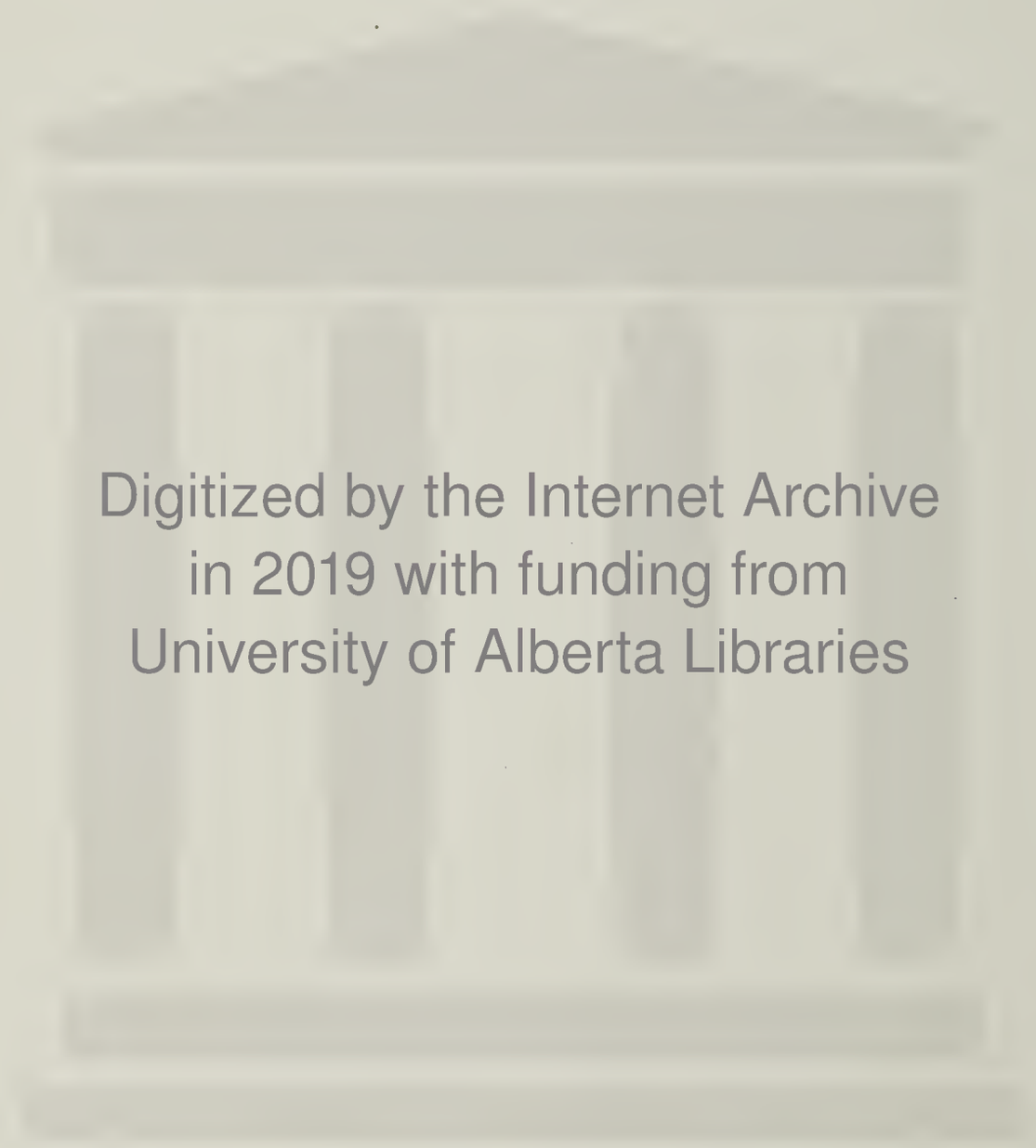
University of Alberta Library
0 1620 2063 1253


Digitized by the Internet Archive
in 2019 with funding from
University of Alberta Libraries

https://archive.org/details/bluejay604sask

BLUE JAY

Volume 60 Number 4 December 2002



UNIVERSITY OF ALBERTA
JAN 16 2003
LIBRARY

Blue Jay, founded in 1942 by Isabel M. Priestly, is a journal of natural history and conservation for Saskatchewan and adjacent regions. It is published quarterly by **Nature Saskatchewan, 206-1860 Lorne Street, Regina, Saskatchewan S4P 2L7.**

CN ISSN 0006-5099

Editors: Anna and Ted Leighton, 328 Saskatchewan Crescent West, Saskatoon, SK S7M 0A4, Canada. E-mail : leighton@sasktel.net
Associate Editors : Mark Brigham, Rainer Ebel, Marlene Evans, Ronald Hooper, Stuart Houston, Joanne Marchand, Josef Schmutz, Robert Warnock.

EDITORIAL INFORMATION: *Blue Jay* welcomes all submissions, hand-written or typed, polished or in need of editorial assistance. All items for publication should be addressed to the editors. Deadlines for text for each issue are two months prior to issue, i.e. 1 January, 1 April, 1 July and 1 October. Deadlines for photographs are one month later. Please include the author's telephone number or E-mail address for editorial contact. Hand-written or typed manuscripts should be submitted in duplicate. Manuscripts can also be submitted in electronic form, either on a 3.5" diskette or by E-mail in WordPerfect, Microsoft Word, Rich Text Format (rtf) or ASCII text. Send images separately. For further information, see "Guidelines for Authors" in the March 2000 issue of *Blue Jay* , Vol. 58 (1). R. W. Nero and J. R. Duncan abstract *Blue Jay* for *Recent Ornithological Literature*. *Blue Jay* is abstracted by BIOSIS.

Common names are used for birds, mammals and butterflies. Bird names follow the Checklist of North American Birds by the American Ornithologists' Union (7th edition, 1998); mammal names, The Mammals of Canada by Banfield ; butterfly names, The Butterflies of Canada by Layberry *et al.* For other groups, both scientific and common names are included.

Photographs are preferred as prints, but slides are acceptable. We prefer original slides to duplicates. Although Nature Saskatchewan will make every effort to return your photographic material to you, we recommend that you make a copy for your records in case your slide gets lost in the mail. We encourage submission of photographic material with articles and we welcome colour photos for *Blue Jay* covers.

Any material printed in *Blue Jay* may be reprinted for non-commercial purposes, without permission, but credit lines are both appreciated and good etiquette. Use of photographs and poetry requires permission from the photographer/author.

REPRINTS: a maximum of five reprints is available free of charge for each article. Authors wishing to receive reprints should send their request, along with a stamped ($.96) self-addressed, 5 3/4 x 9 1/2 in. kraft envelope to the Nature Saskatchewan office as soon as they receive notice that their article is accepted for publication.

SUBSCRIPTIONS: Subscription to *Blue Jay* is one of the benefits of membership in Nature Saskatchewan. A membership application form is included on the last page of each issue. Send all renewals, new memberships, donations and changes of address to Nature Saskatchewan (address at top).

Bulk subscription orders (minimum of five to one address) are available to society members and educational institutions at the rate of $15 (Can.) for the first subscription and $13 for each additional one. Outside Canada, fees are $18 (Can.). We do not collect GST on memberships or subscriptions.

COVERS: **Front** - Sanderlings at the Quill Lakes in May.
Photo by Gerard W. Beyersbergen

Printed by Administration Centre Printing Services, Regina, Saskatchewan on 10% recycled paper.

THIS ORGANIZATION RECEIVES FUNDING FROM Saskatchewan LOTTERIES

Blue Jay

Vol. 60 No. 4 December 2002 191-252

Nature

FIELD SKETCHES: HORNED LARK & LAPLAND LONGSPUR; MUSKRAT. *Paul Geraghty* 222; 252

Birds

HUMAN HABITATION ENHANCES SPECIES DIVERSITY: TRENDS OVER THREE DECADES OF CBCs AT THE APEX OF PALLISER'S TRIANGLE. *James K. Finley and Kim B. Finley* 192

SHOREBIRD MIGRATION AT LUCK LAKE, SK. *Michael R. Norton and Gerard W. Beyersbergen* 199

THREE TURKEY VULTURE PAIRS NEST IN SASKATOON BIRD AREA. *C. Stuart Houston, Marten J. Stoffel and Alan R. Smith* 206

A BAD YEAR FOR PURPLE MARTINS NEAR SASKATOON. *Gerald J. Parent and Mary I. Houston* 209

FIRST NESTING OF COMMON RAVENS IN THE SASKATOON BIRD AREA. *Marten J. Stoffel* 211

A MAGPIE BAND-RELEASE PROJECT IN THE CALGARY AREA, 1949. *Jim Salt* 213

Plants

PUCCOONS IN SASKATCHEWAN. *Vernon L. Harms* 216

Notes and Letters

EASTERN PHOEBE HANGING BY A THREAD. *Victor C. Friesen* 224

ADDITIONAL ROUNDLEAF MONKEY-FLOWER POPULATIONS IN MANITOBA. *Cary Hamel and Elizabeth Reimer* 224

FLYING SQUIRRELS IN BLUEBIRD NEST BOXES. *Ardythe McMaster* 225

COMMON ROADSIDE SKIPPER VANISHES AT THE PAS, MANITOBA. *Walter Krivda* 226

LAZULI BUNTING IN SASKATOON. *Peter Hardie* 227

Poetry

EURYCEA TRIDENTIFERA *Mark Abley* 227

BIRD-BLOSSOMS *Jean Mackenzie* 232

Nature Library

THE SITE: A PERSONAL ODYSSEY. *Robert Nero* 228

WHERE THE RIVER RUNS. *Victor Carl Friesen* 229

BOLT FROM THE BLUE: WILD PEREGRINES ON THE HUNT. *Dick Dekker* . 230

Nature Saskatchewan News 233

Mystery Photo 235

Index to Volume 60 *Compiled by Teresa Dolman* 237

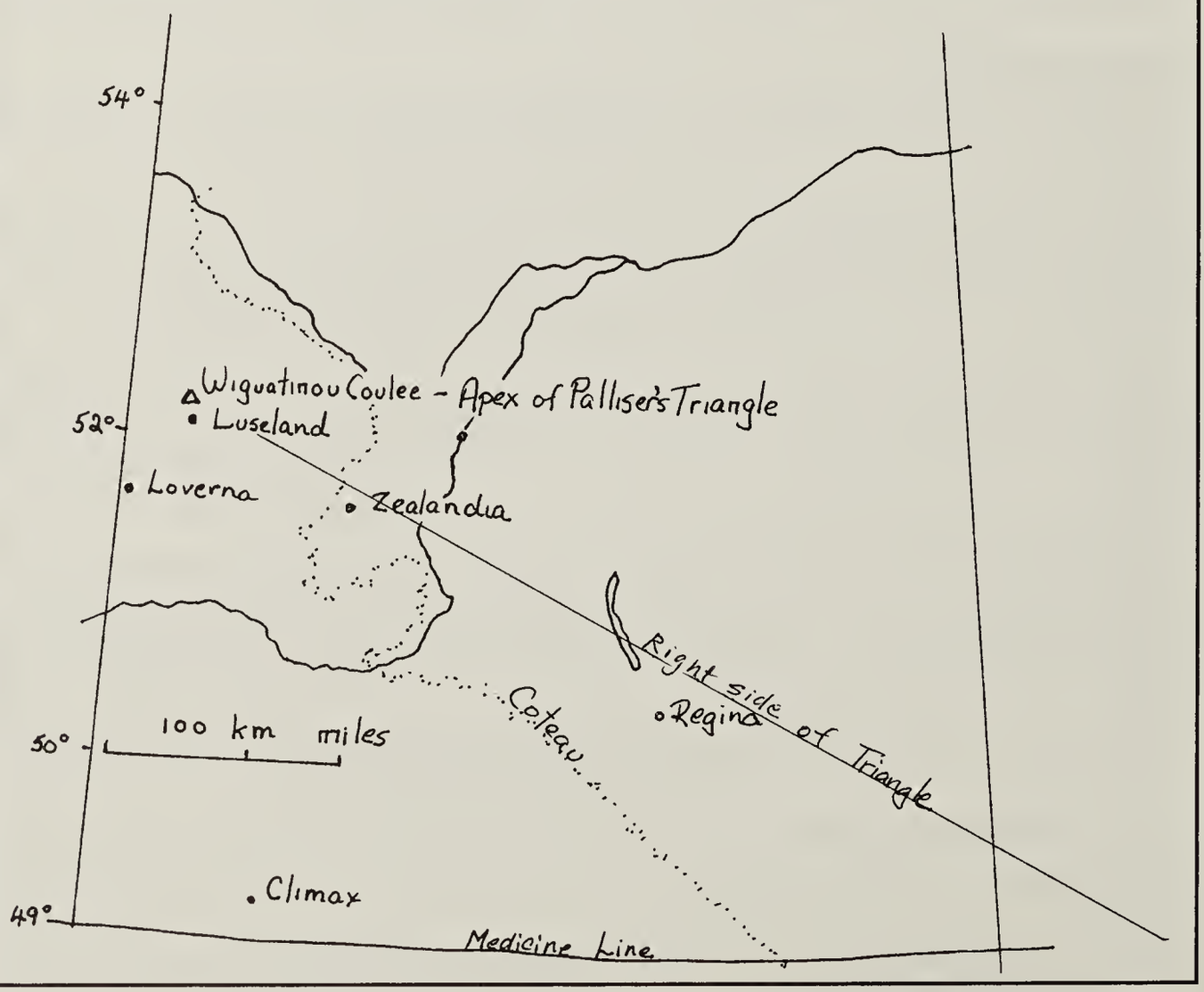
HUMAN HABITATION ENHANCES SPECIES DIVERSITY : TRENDS OVER THREE DECADES OF CBCs AT THE APEX OF PALLISER'S TRIANGLE

JAMES K. FINLEY and KIM B. FINLEY, Box 36, Luseland, Sask. S0L 2A0

In 1982, we wrote an article for *Blue Jay* entitled *"A decade of Christmas bird counts in the aspen parkland."*[1] We concluded after the first decade that our surveys provided a "reasonable index of winter bird life from which we can now begin to look for trends."[1] In those days, a decade seemed much longer so it is with some surprise that we find ourselves looking back over the last three decades with greater hindsight and a dash of humility.

Our title was misleading; the plain fact is that we're at the margin of the aspen parkland, forty miles due south of the apex of Palliser's Triangle (Fig. 1).[9] This was the

Figure 1. Luseland, situated beneath the apex of Palliser's triangle



country that naturalist John Macoun ardently believed would benefit from the "civilizing influence of the plough."[10] It was his glowing appraisal that the Canadian government was sold on and his Edenesque picture that drew our forefathers into the infamous triangle. We're the third generation removed from these sodbusting pioneers, inheritors of a regional natural history that extends from homesteads at Climax, at the base of the triangle, to Zealandia, Loverna and Luseland,[5] a triad of dead or dying settlements at the apex. Luseland, latitude 52° 05' N, is surrounded by a lacustrine plain to the south, and low relief hummocky terrain between two main glacial valleys. The area was settled between 1907 and 1910 by various Slavic and Anglo-American cultures. The town currently has a population of around 600 and has been slowly declining, like most prairie towns, over the last three decades.

Less than a century ago, this region was a mosaic of fescue and mixed-grass prairie, maintained by buffalo and fire. The first settlers had to travel forty miles west to Sounding Lake, Alberta to find firewood. After settlement and fire suppression, aspen advanced quickly and established itself in moister pockets of hummocky terrain. This succession is well illustrated in early photographs.[5] Today, although some areas resemble parkland, aspen groves usually account for less than 10% of the vegetation cover. Remnants of mixed-grass prairie exist, somewhat ironically, mostly in the RM of Progress PFRA pasture. Except for a few coulees, fescue grassland has been almost eliminated. Over 90% of the land area has been highly altered from its native state and is maintained at a pioneering level (like the first stage after glaciation, volcanism or fire), a juvenile ecosystem where "weedy" species prosper.

The area is dominated by cereal monoculture subject to changing economies of scale, rapidly-changing farming practices and rural depopulation. Crop diversity has increased dramatically since 1970, with canola, mustard, pulse seeds, sunflower and canary seed being cultivated. Abandoned farmsteads are numerous, usually every half section. Luseland once boasted six grain elevators, now replaced by two large elevators, one of them a concrete monolith. In the surrounding area, Superb, Major, Reward, Revenue, Onward, Hearts Hill, echo Macoun's enthusiasm, whereas Cactus Lake and Tramping Lake sway to Palliser's tune. Baliol and Salvador are more enigmatic. Most are depopulated, and except for the Caraganas and Manitoba Maples, Hearts Hill and Baliol are all but invisible, expunged from the maps.

Agricultural settlement of the prairies, one of the most rapid and expansive conquests in history, has generally been regarded as anathema to species diversity. While it's true that a vast area of native prairie has been destroyed, and with it some of the endemic species, human cultural practices have, in fact, created greater habitat diversity, resulting in more bird species than could exist in the natural state. While monoculture, by nature, greatly reduces species diversity, its subsidiary or side effects can enhance diversity. Though some would argue that sparrows, pigeons, and starling are about as culturally diverse as a Big Mac, they are well adapted, and–like it or not–pugnacious survivors. (Without the chirping of House Sparrows, a prairie town or farm would be oppressively quiet in winter.)

Methods

Our methods are crude but fairly consistent in terms of observer experience and continuity. Usually the count occurs on Boxing Day or the day after New Year's. In Luseland, we take a morning stroll through town and the elders keep watch at bird feeders throughout the day. Typically, two parties scour the country in vehicles within a 7-mile radius, covering about 75 miles. We walk through aspen groves and abandoned farmyards, monitored in

previous years, usually covering 5-10 miles. The count always includes "Williams Pasture", an area of mixed-grass prairie in the PFRA pasture, and a small acreage of fescue grassland at "Birks Grove."

Results

An average of 14 species (SD 2.6) was recorded on the 30 counts. Thirteen species were observed on more than 70% of the counts; six of these (Gray Partridge, Rock Dove, House Sparrow, Black-capped Chickadee, Magpie, Snow Bunting) occurred on practically all counts (Table 1).

The average number of species increased by about two over the three decades : 13.5 ± SD 2.2 in the 1970s, 14.9± 2.8 in the 1980s, 14.9 ± 2.7 in the 1990s. Blue Jays began appearing regularly in 1977. Hairy Woodpeckers first appeared in 1982 and Red-breasted Nuthatches, only in the last decade. Starlings, Cedar Waxwings and Merlins waxed and waned during the middle decade. Sharp-tailed Grouse, Pine Grosbeaks, Bohemian Waxwings, Northern Shrikes and Horned Larks declined in frequency over the period.

A province-wide assessment made in 1986 found that four species represented 78% of observations made on provincial bird counts – House Sparrow 31%, Snow Bunting 28%, Bohemian Waxwing 10%, redpoll sp. 9%.[8] These same four represented 82% of our numbers but in different proportions – 21, 45, 5, and 11 %, respectively. (These top four accounted for only 60 % of total numbers recorded provincially in 2000.[4])

The abundance of most species was quite consistent over all decades, though there was considerable yearly variation in redpolls, Snow Buntings and Bohemian Waxwings. Numbers of Black-capped Chickadees and Blue Jays increased since the first decade, and magpies have increased in the last decade. Peak numbers of Redpolls in the last decade were due to invasions in 93 (205), 95 (457) and 99 (519). Sharp-tailed Grouse declined noticeably in the last decade and were not seen on the last two counts.

In addition to the 22 species listed in Table 1, another 22 species were recorded on one or two counts. These are, in chronological order of appearance (asterisks indicate those species observed on two occasions): Western Meadowlark, Golden-crowned Kinglet, Evening Grosbeak*, Saw-whet Owl*, American Tree Sparrow*, White-breasted Nuthatch, Spruce Grouse, Prairie Falcon, Gyrfalcon, Northern Harrier, Brown Creeper, Common Grackle, Northern Flicker, Gray Jay, Short-eared Owl, Golden Eagle, Bald Eagle, Red Crossbill, Townsend's Solitaire, Song Sparrow, Common Raven* and Purple Finch. Remarkably, we continue to add a new species almost annually.

Discussion

So, other than an excuse to get outdoors and escape from cold turkey, what does this annual madness mean ?

Representation: Although the methodology is crude, it's robust enough to provide a consistent index. This is due to observer experience, continuity and behaviour (slothful creatures of habit), but, more importantly, it's due to the fact that in winter birds have few places to hide. Poor counts occasionally occur due to severe weather conditions, limited coverage or few observers.

Our census provides an avifaunal signature representing the apex of Palliser's Triangle specifically, and Saskatchewan in general–the 16 most frequently recorded species were, with one exception, the same ones recorded on all provincial counts between 1942 and 1976. [7] This is because we're on the fringe of the parklands and the provincial compilation is a mix of prairie and parkland sites. The exception was the Horned Lark which ranked 11th on our list

Table 1. Frequency and average count of bird species recorded on three or more counts, by decade, 1971 - 2001.

	Frequency *			Average number **			
	70s	80s	90s	70s	80s	90s	All
Sharp-tailed Grouse	9	8	4	6	18	1.3	8.7
Gray Partridge	10	9	9	23	37	28	29.3
Rock Dove	10	10	10	25	37	41	34.1
Snowy Owl	10	7	6	0.4	1.5	0.7	0.9
Horned Owl	2	7	5	1.5	1.3	1.0	1.3
Downy Woodpecker	8	6	6	0.7	2.2	0.8	1.2
Hairy Woodpecker	0	6	7	0.1	1.5	1.4	1.0
Black-capped Chickadee	9	8	8	4	12	10	8.3
Black-billed Magpie	10	10	10	30	27	41	33.5
Blue Jay	5	9	7	1.1	4.3	3.7	3.0
Bohemian Waxwing	9	8	6	58	29	33	41.5
Pine Grosbeak	4	3	1	7	2.8	2.1	4.0
Redpoll sp.	10	7	8	56	59	154	91.3
Snow Bunting	10	10	9	265	554	224	356.6
Horned Lark	8	7	6	10	10	2.5	7.8
House Sparrow	10	10	10	153	249	112	171.0
European Starling	4	6	2	2.5	2.8	4.1	3.2
Northern Shrike	3	1	0	-	-	-	-
Northern Goshawk	1	1	1	-	-	-	-
Merlin	0	3	0	-	-	-	-
Cedar Waxwing	0	5	2	-	-	-	-
Red-breasted Nuthatch	0	0	4	-	-	-	-

* Number of counts per decade that the species was seen.
** Average number of individuals on counts in each decade.

Table 2. Some human cultural practices that affect species abundance, either negatively or positively.

Sharp-tailed Grouse	Waste grain, PFRA management, predation by fox and owls
Gray Partridge	Waste grain, shelterbelts, predation by fox and owls
Rock Dove	Waste grain, abandoned buildings
Snowy Owl	Vole eruptions, continuous cropping, global warming
Horned Owl	Abandoned buildings and farmsteads
Downy Woodpecker	Fire suppression, old growth aspen
Hairy Woodpecker	Fire suppression, old growth aspen
Black-capped Chickadee	Fire suppression, old growth aspen, bird feeders
Black-billed Magpie	Cattle feedlots, burning ban in garbage dump
Blue Jay	Bird feeders
Waxwing sp.	Berry and crabapple trees, thermal shelter in Blue Spruce
Pine Grosbeak	Abandoned farmsteads, decline of Manitoba Maple
Redpoll sp.	Waste grain, screenings, weed seeds
Snow Bunting	Weed seeds, continuous cropping, snow cover
Horned Lark	Weed seeds, summer fallow, camouflage on gravel roads
House Sparrow	Waste grain, abandoned buildings, concrete elevators
European Starling	Garbage dump - ban on burning lifted in 2001.
Merlin	Sparrows, thermal shelter in Blue Spruce

(18th on the provincial list), more indicative of the open prairie. Interestingly, in recent years, the top 16 species have changed somewhat; Common Ravens, White-breasted Nuthatches, and Ruffed Grouse have joined the top ranks.[4]

Our survey does not represent all habitats equally–it favours aspen habitat–nor does it represent all species; Great Horned Owls for instance, which are always around, are difficult to detect because they are nocturnal. The census, particularly in the early years, was biased against House Sparrows, as they were considered a nuisance to count. This oversight is unfortunate because we have noticed a decline in these sparrows due to the loss of wooden elevators, use of metal granaries and fewer feedlots, that we are unable to quantify. A decline in sparrows, due to changing economies of scale, may explain why Merlins have not been seen in Luseland in the last decade, nor do they breed here like they used to.

Our survey results produce a consistent index that is representative of rural Saskatchewan. Urban centres, like Saskatoon and Regina, with their greater habitat diversity, dams and electrical generating stations, record more than twice the number of species seen in rural areas.

Habitat Complexity: We stated earlier that at least half the common species were highly dependent on the human cultural environment.[1] This was an understatement – most or all of the species are dependent on the human cultural environment. Naturally, they wouldn't be caught dead on the bald prairie in midwinter. The "civilizing influence of the plough" has contributed greatly to habitat complexity–from aspen groves, weed patches, shelterbelts from Caraganas to Blue Spruce, abandoned barns and granaries, spilled grain, weed screenings, bird feeders etc. (Table 2). Towns are virtual oases compared to the surrounding country. In this highly altered landscape, few species are truly endemic in winter–perhaps the Snowy Owl and Snow Bunting–but even these have benefitted by our cultural practices. Snowy Owls benefit from vole eruptions when swathed fields are snowed under, and Snow Buntings feed heavily on weed seeds. Few other species on our list would be here if not for the human cultural environment–at first, an accidental by-product of civilization, more recently as a conscious effort. For example, before we initiated this census, very few people bothered to feed birds, now many have bird feeders, a behavioural change that has contributed to species diversity and abundance, e.g. jays, chickadees and nuthatches. In turn, farmers have benefitted by adding canary seed and sunflowers to crop diversity.

Although we inhabit a perpetually juvenile ecosystem, it also has mature and decaying elements that contribute to habitat complexity over time. Old, decaying aspen is favoured by woodpeckers and chickadees, and dead poplars and abandoned buildings provide cavities and thermal shelter for various species. We suspect that the arrival of Hairy Woodpeckers during the middle decade of our surveys was due to the maturation and decay of aspen groves. The present deep drought has killed more trees, ensuring future food and shelter.

In 1982, we noted that changing economies of scale manifest in rural depopulation, increasing farm size, feedlot size, and clearing of aspen groves and farmsteads, influenced bird abundance and species diversity. We sympathized with defenseless victims of this process, like chickadees and woodpeckers, as aspen groves were bulldozed during the halcyon seventies, when wheat was still king. In retrospect, they didn't need our sympathy; although farm size continues to increase, the practice of clearing aspen and breaking prairie has slowed in step with wheat prices, giving them a reprieve. Feeding stations have given them an even bigger reprieve.

Predation: In 1982 we suggested that decimation of Coyotes by snowmobilers, and their replacement by Red Foxes in the late 1960s, was indirectly responsible for the low abundance of Gray Partridge and Sharp-tailed Grouse, though our evidence was circumstantial, as our surveys began after the fact.[1, 2] Coyotes have increased markedly during the last decade and foxes have all but disappeared, as expected, but the anticipated rebound in upland game is not yet evident. Suitable grouse habitat is still available in the PFRA pasture so perhaps the species has fallen below the threshold at which predation and hunting pressure exceed its reproductive capacity. If present trends continue, Sharp-tailed Grouse may be headed for extirpation, a lamentable loss, but we are cautiously optimistic, having seen a few more birds during this past summer. Surprisingly, Gray Partridge have not rebounded, remaining well below population levels prior to the census; only four were observed on the last count. Perhaps another predator, dare we say "whoo," is at work.

Climate change: One of the biggest differences that we have witnessed since the early seventies is the lack of snow cover and milder temperatures. (There hasn't been a snowy winter since 1973.) Perhaps this explains the addition of new species like Red-breasted Nuthatches, Northern Flickers, Common Grackle and Northern Harriers. It may be that Cedar Waxwings are acclimatizing, whereas Bohemians shun the new "Banana Belt". We haven't lost crops under the snow in the past two decades, so vole and owl populations haven't erupted as they did in the late sixties. With less snow cover, one might have expected more Horned Larks but this hasn't happened. We're into the third year of a deep drought, and the period leading up to the last count was one of the warmest and driest on record.[6] In 2001, record numbers of CBC participants turned out across Saskatchewan, and a total of 113 species were recorded, the second highest ever.[4]

Changing cultural practices: Public attitudes and government policy influence habitats and wildlife populations in various ways, from species composition of shelterbelts to grazing practices on the PFRA pasture. Few people plant Carrragana and Manitoba Maple shelterbelts anymore, but Blue Spruce has become popular and well established around many farmyards, and it provides better shelter than most tree species. As the human population ages and few new homes and yards are created, the initiative to plant ornamental trees such as crabapples, birch and mountain ash has waned, and "orchards" have declined and disappeared. In the early seventies, a defoliant (Agent Orange it was rumored) was applied widely on PFRA pastures to eliminate brush, but the government has since recognized the wildlife value of these pastures and the practice of spraying has ceased.

Changing attitudes: The annual Christmas bird count was initiated by the Audubon Society as an alternative to the blood sport of bagging species. It's now considered a healthy, socially-acceptable winter sport, engaged in by thousands across North America. It's a great excuse to wear off the gluttony of the season, as well as providing spiritual satisfaction (the peace and quiet of an aspen grove is a fine antidote to the hubbub of the exalted turkey and tree). In a community once noted for its Christmas and Boxing Day spirit, it's a celebration of survival at the frigid apex, bringing together kindred souls.

Biological diversity: "Biodiversity" is the buzzword of our times, synonymous with natural, the antithesis of man-made. In fact, human agricultural settlement of the prairies has enhanced avifaunal diversity over the native state. In spite of, or because of us, the adaptable species endure, even prosper. We have created diversity, both consciously and unconsciously.

Thirtieth CBC Anniversary: The thirtieth annual count on December 31st, 2001,

produced only 12 species, one of our lowest counts ever, despite thorough coverage. Surprisingly, there were no chickadees, woodpeckers or waxwings. A heavy hoar frost shrouded the aspen groves, limiting visibility, but not to the extent that it would explain the absence of these species. Waxwings were noticeably absent throughout November and December, and the crop of Mountain Ash berries and crabapples remained untouched. A new species, the Purple Finch, has been added to our list, and a raven was recorded for the second year in a row. We searched thoroughly in the PFRA pasture but could not find any sign of Sharp-tailed Grouse, the second year in a row. Hopefully our provincial icon is not headed the same way as the Greater Prairie-Chicken. Only four Gray Partridges were seen, one of the lowest counts, despite the fact that only two fox tracks were recorded. Most of the magpies that we counted were at the garbage dump, even though the provincial ban on burning garbage was recently repealed, due to burgeoning rat populations.

One of the more interesting sightings was of four moose, three bulls and a cow, recent invaders, reminding us that they're a boreal species that prospers in pioneering ecosystems and adapts well to human culture.[3] Not only do deer play with the antelope near the apex of Palliser's Triangle, they actually waltz around with moose, like no other place on earth. Macounian optimism prevails despite the Palliserian drought.

With this, we celebrate the sixtieth anniversary of this Saskatchewan tradition, and salute all those intrepid individuals across this vast province who constitute the spirit and the vision of Nature Saskatchewan.

Acknowledgements

Many observers participated over the decades and not all can be named. Our families, including Bob, Val, Estelle, Graeme, Liam, Laura, Theron, Gavin, Sandra, Kelly, Robbie, Beverly, Brent, Dustin, and Levi, participated as did many friends, including Bev and Don Einarson, Bill Frey, Harvey Rozzlein, Glenn, Don and Travis Martfeldt. Theron Finley helped to enter the data. Special thanks to Anna Leighton for her fine editing skills.

In fond memory of Wayne C. Harris.

1. FINLEY, K. and K. FINLEY. 1982. A decade of Christmas bird counts in the aspen parkland. *Blue Jay* 40 (1) : 31-33.

2. FINLEY, K. 1996. The red fox invasion and other changes in wildlife populations in west-central Saskatchewan since the 1960s. *Blue Jay* 54 : 206 - 210.

3. GEIST, V. 1999. Moose: behavior, ecology and conservation. Voyageur Press Inc., Stillwater, Minnesota.

4. HARRIS, W. C. 2001. 59th annual Saskatchewan Christmas bird count – 2000. *Blue Jay* 59 (1) : 2 – 28.

5. LUSELAND HISTORICAL SOCIETY. 1983. Luseland : Hub and Spokes. Volume 1. 528 p.

6. MITTLESTAEDT, M. 2001. Welcome to the great warm north. Globe and Mail Newspaper. November 28, 2001.

7. RENAUD, W. and G. WAPPLE. 1977. A review of Saskatchewan Christmas bird counts: 1942-1976 (Part 1). *Blue Jay* 35 (4) : 224 – 239.

8. RENAUD, W., G.WAPPLE and R. WAPPLE. 1988. A summary of Saskatchewan Christmas Bird Counts: 1942 – 1986. *Blue Jay* 46 (1) : 29 – 33.

9. SPRY, I.M. 1968. The Palliser Papers 1857- 60. The Champlain Society. Toronto. 694 p. & xix.

10. WAISER, W. 1989. The Field Naturalist: John Macoun, the Geological Survey, and Natural Science. University of Toronto Press. 253 p.

SHOREBIRD MIGRATION AT LUCK LAKE, SK

MICHAEL R. NORTON and GERARD W. BEYERSBERGEN, Canadian Wildlife Service, Environment Canada, #200, 4999 - 98 Ave., Edmonton, AB T6B 2X3
mike.norton@ec.gc.ca & gerard.beyersbergen@ec.gc.ca



Overview of Luck Lake, May 2002. ***Michael Norton***

Lakes and wetlands in prairie Canada provide abundant habitat for shorebirds. Sixteen species breed regularly in Saskatchewan, and an additional 19 species migrate through the province each year but breed farther north.[6] Shorebirds are capable of non-stop flights of thousands of kilometres during migration, fueled by energy stored as fat. Due to the distance between wintering and breeding areas, they must replenish their fat reserves at locations with suitable habitat. These "staging areas" are critical to shorebirds for the completion of their annual migration.

Saskatchewan contains several large wetland basins known to be important for migrating shorebirds. For example, the Quill Lakes and Chaplin/Old Wives Lakes each support hundreds of thousands of shorebirds each year. Surveys are ongoing to document other sites of critical importance to migrant shorebirds to help establish priorities for population monitoring and the conservation and management of key sites in accordance with a national strategy.[3] It has been recognized that Luck Lake hosts large numbers of shorebirds during spring and fall migration, when habitat conditions are suitable, and the lake was surveyed 1989-1994 (M. Gollop, unpublished data) to document numbers of birds using this site. This article presents summary results from four years of surveys of migrant shorebirds conducted since 1996 at Luck Lake.

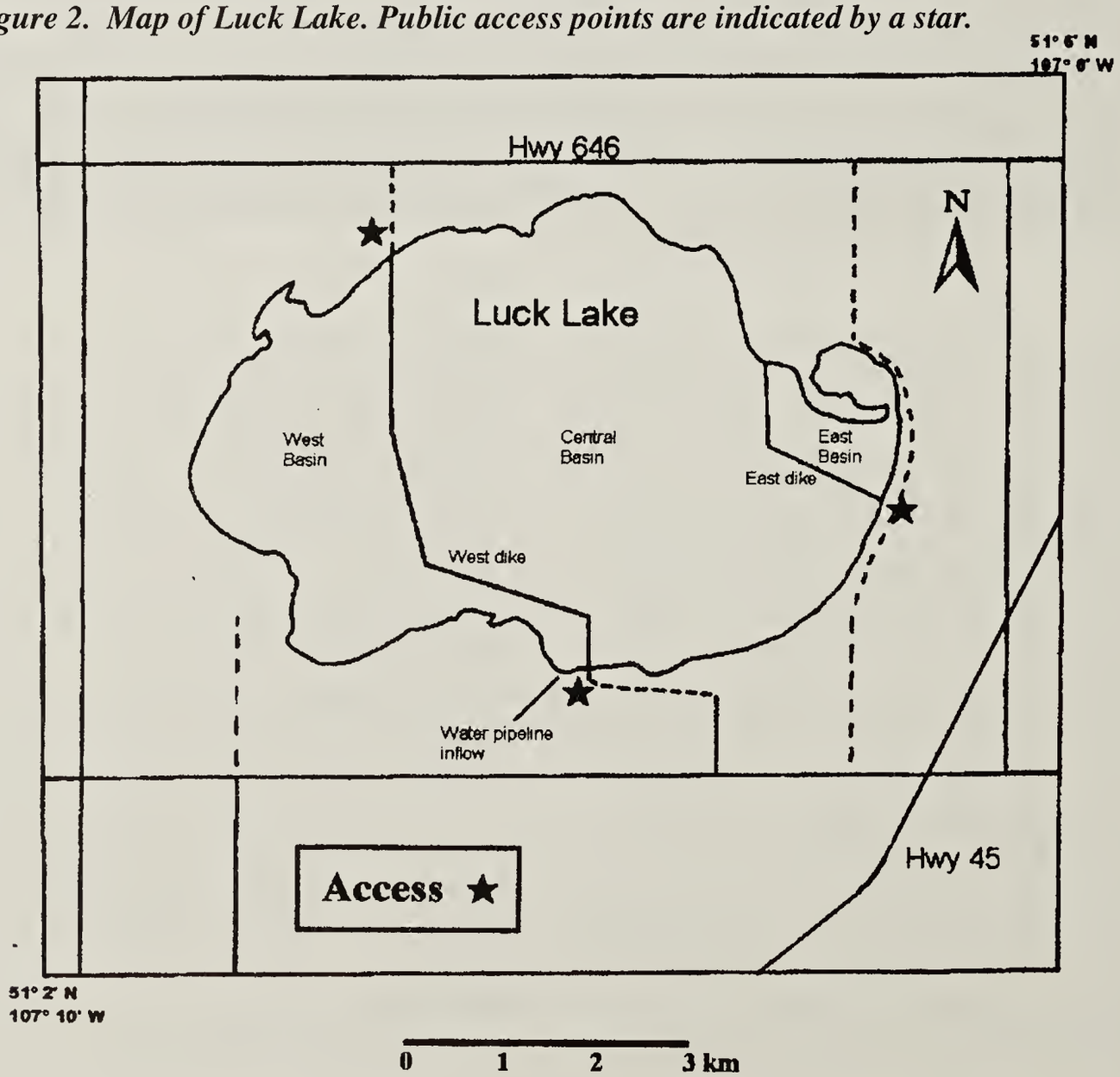
Study Area

Luck Lake (51° 4' N 107° 6' W) is a

shallow, alkaline lake located approximately 45 km south of Outlook. The lake is roughly oval in shape with maximum dimensions 8 km x 5 km, and approximately 27 km of shoreline. Historically, the lake was subject to highly variable water level conditions and periodically dried out completely. In 1987, however, a partnership of conservation organizations led by Ducks Unlimited Canada undertook development of the Luck Lake Heritage Marsh. The project involved construction of a water pipeline, dikes with water control structures, and other improvements.[4] The lake now usually holds water in 2 of 3 basins, and marsh vegetation is developing in the east and west basins of the lake (Figure 2). The width of mud flats, the habitat most favoured by many shorebirds, varies with precipitation levels and the rate of water inflow through the pipeline. As is typical of shallow prairie lakes, water levels tend to be highest in the spring, and can be significantly lower in the late summer and fall.

Habitat conditions for shorebirds varied significantly during the years the surveys were done, but in all years there was suitable shorebird habitat. Water and open mud flats were present in the west basin in August 1995 but the central basin was nearly dry. Unfortunately, habitat conditions are unknown for the fall of 1996. Water levels were high in 1997 and on May 11 the basins in Luck Lake were full, with minimal shoreline habitat available or suitable for shorebird use. The following spring, water levels had receded and the southern shoreline of the central basin on May 21, 1998 had extensive mud flats varying in width from 5 to 15 m. Shoreline mud flats continued to be exposed or expanded, and in July 1998 ranged in width from 10 m to 50 m around the central basin, with similar conditions

Figure 2. Map of Luck Lake. Public access points are indicated by a star.



along the west side of the west basin. In 2001, shoreline mud flats were roughly 10 m to 50 m in width in the west and central basins, but continuing drought conditions led to very low water levels in spring 2002; mud flats were up to 500 m or more wide in the central basin, and the east basin was nearly dry.

Methods

Surveys were conducted in 1996, 1998, 2001, and 2002. Surveys in 1996 and 1998 focused on the fall migration period (mid-July to late September), and surveys in 2001 and 2002 focused on the spring migration period (early May to early June).

Because timing of migration varies with species, sex, and age of birds, repeated visits were made in each season to document all species which might use the lake. Each survey visit was completed within a single day, and most of the lake shoreline, including both dikes, was surveyed on each visit. Surveys were most intensive in the fall of 1996 (9 visits) and spring of 2001 (5 visits), with only 3 visits in 1998 (1 spring, 2 fall), 1 in fall 2001, and 2 in spring 2002 (Table 1). Surveys were conducted by one or two observers using all terrain vehicles to travel along the upper edge of the mud flats. Surveys were never conducted in the rain, but due to a prevalence of high winds in the area, some surveys were conducted in winds up to 50 km/h. Birds were counted and identified using binoculars and/or a 15-60 power spotting scope. Occasionally, distance to groups of birds made species identification impossible and in such cases, birds were classified according to size as small, medium, or large. Poor visibility of the water's edge due to very wide mudflats in 2002 made identification particularly problematic.

Results are presented as daily total counts across all species (Table 1), or as peak one-day counts for individual species (Tables 2

Table 1: Total shorebird counts at Luck Lake, SK. Each count represents a full survey of the shoreline of the lake including both dikes. Numbers include birds which could not be identified to species.

	Relative Abundance	Fall 1996[a]		Fall 1998[b]	
	(Fall 1996)	Max Number	Max Date	Max Number	Max Date
Dowitcher sp.	43.55	4,951	5 Sept.	3,812	17 July
Yellowlegs sp.	22.21	2,528	21 Aug.	3,958	17 July
Semipalmated Sandpiper	9.12	1,703	21 Aug.	263	17 July
Stilt Sandpiper	4.96	935	28 Aug.	2,575	17 July
Wilson's Phalarope	4.47	706	31 July	490	17 July
Hudsonian Godwit	2.15	320	24 July	553	19 July
Black-bellied Plover	1.15	155	21 Aug.	8	17 July
Willet	1.02	124	31 July	404	17 July
Marbled Godwit	1.01	285	21 Aug.	473	17 July
Pectoral Sandpiper	0.99	121	21 Aug.	71	19 July
American Avocet	0.82	86	18 July	69	19 July
Red-necked Phalarope	0.72	178	18 July	304	17 July
Baird's Sandpiper	0.52	85	31 July	17	19 July
Semipalmated Plover	0.24	97	31 July	63	19 July
Killdeer	0.10	9	14 Aug.	46	17 July
Sanderling	0.08	26	12 Sept.	1	17 July
American Golden-Plover	0.04	16	5 Sept.	-	-
Common Snipe	0.04	6	28 Aug.	-	-
Spotted Sandpiper	0.02	3	12 July	4	19 July
Piping Plover	<0.01	1	31 July	2	19 July
Ruddy Turnstone	<0.01	2	21 Aug.	2	17 July
Least Sandpiper	-	-	-	40	19 July

[a] n = 9 surveys (12 July, 18 July, 24 July, 31 July, 14 Aug., 21 Aug., 28 Aug., 5 Sept., 12 Sept.)

Table 2: Maximum daily total counts of shorebirds at Luck Lake, SK during spring migration 2001 and 2002. The date on which the maximum count occurred is shown. Relative abundance of shorebirds in spring 2001 is the percentage of the total count across all 5 visits in that year.

	Relative Abundance	Spring 2001[a]		Spring 2002[b]	
	(Spring 2001)	Max Number	Max Date	Max Number	Max Date
Semipalmated Sandpiper	29.73	13,635	21 May	1,668	25 May
Red-necked Phalarope	23.38	14,881	21 May	2,217	25 May
Stilt Sandpiper	15.87	7,319	21 May	597	16 May
Sanderling	10.01	6,645	2 June	389	25 May
Baird's Sandpiper	6.68	1,855	21 May	1,728	16 May
American Avocet	4.44	997	12 May	197	25 May
Dowitcher sp.	3.95	3,217	12 May	-	-
Black-bellied Plover	1.70	727	21 May	148	25 May
Pectoral Sandpiper	0.92	947	21 May	77	16 May
Willet	0.46	107	16 May	53	16 May
Wilson's Phalarope	0.44	220	12 May	6	16 May
Marbled Godwit	0.22	88	12 May	16	25 May
American Golden-Plover	0.13	78	12 May	-	-
Least Sandpiper	0.11	95	21 May	23	25 May
Yellowlegs sp.	0.10	65	12 May	3	16 May
Semipalmated Plover	0.09	63	21 May	4	25 May
Dunlin	0.06	17	23 May	-	-
Red Knot	0.03	10	23 May	2	16 May
Ruddy Turnstone	0.03	13	21 May	-	-
White-rumped Sandpiper	0.03	30	16 May	-	-
Killdeer	0.02	7	12 May	3	16 May
Whimbrel	0.02	19	16 May	-	-
Hudsonian Godwit	0.01	12	12 May	-	-
Spotted Sandpiper	0.01	6	16 May	-	-
Common Snipe	<0.01	3	12 May	-	-
Piping Plover	<0.01	2	2 June	1	25 May
Upland Sandpiper	-	-	-	2	25 May
Long-billed Curlew	-	-	-	1	25 May

[a] n = 5 surveys (12 May, 16 May, 21 May, 23 May, 2 June)
[b] n = 2 surveys (16 May, 25 May)

and 3). Because of unknown lengths of stay and turnover rates of the various species, it is not appropriate to calculate species totals by summing counts made on successive visits. All numbers presented are therefore extremely conservative of the actual total numbers of birds using Luck Lake.

Results and Discussion

Twenty-eight shorebird species were

Table 3: Maximum daily total counts of shorebirds at Luck Lake, SK during fall migration 1996 and 1998. The date on which the maximum count occurred is shown. Relative abundance of shorebirds in fall 1996 is the percentage of the total count across all 9 visits in that year.

	Relative Abundance	Fall 1996[a]		Fall 1998[b]	
	(Fall 1996)	Max Number	Max Date	Max Number	Max Date
Dowitcher sp.	43.55	4,951	5 Sept.	3,812	17 July
Yellowlegs sp.	22.21	2,528	21 Aug.	3,958	17 July
Semipalmated Sandpiper	9.12	1,703	21 Aug.	263	17 July
Stilt Sandpiper	4.96	935	28 Aug.	2,575	17 July
Wilson's Phalarope	4.47	706	31 July	490	17 July
Hudsonian Godwit	2.15	320	24 July	553	19 July
Black-bellied Plover	1.15	155	21 Aug.	8	17 July
Willet	1.02	124	31 July	404	17 July
Marbled Godwit	1.01	285	21 Aug.	473	17 July
Pectoral Sandpiper	0.99	121	21 Aug.	71	19 July
American Avocet	0.82	86	18 July	69	19 July
Red-necked Phalarope	0.72	178	18 July	304	17 July
Baird's Sandpiper	0.52	85	31 July	17	19 July
Semipalmated Plover	0.24	97	31 July	63	19 July
Killdeer	0.10	9	14 Aug.	46	17 July
Sanderling	0.08	26	12 Sept.	1	17 July
American Golden-Plover	0.04	16	5 Sept.	-	-
Common Snipe	0.04	6	28 Aug.	-	-
Spotted Sandpiper	0.02	3	12 July	4	19 July
Piping Plover	<0.01	1	31 July	2	19 July
Ruddy Turnstone	<0.01	2	21 Aug.	2	17 July
Least Sandpiper	-	-	-	40	19 July

[a] n = 9 surveys (12 July, 18 July, 24 July, 31 July, 14 Aug., 21 Aug., 28 Aug., 5 Sept., 12 Sept.)
[b] n = 2 surveys (17 July, 19 July)

positively identified at Luck Lake over the 4 years of surveys: Black-bellied Plover, American Golden-Plover, Piping Plover, Semipalmated Plover, Killdeer, American Avocet, Greater Yellowlegs, Lesser Yellowlegs, Willet, Spotted Sandpiper, Upland Sandpiper, Whimbrel, Long-billed Curlew, Hudsonian Godwit, Marbled Godwit, Ruddy Turnstone, Red Knot, Sanderling, Dunlin, Pectoral Sandpiper, White-rumped Sandpiper, Baird's Sandpiper, Semipalmated Sandpiper, Least Sandpiper, Stilt Sandpiper, Common Snipe, Wilson's Phalarope, Red-necked Phalarope. In addition, Long-billed Dowitcher and Short-billed Dowitcher were not distinguished and were grouped together as Dowitcher species, but both species may have been present. The number of species compares very favourably with the 35 shorebird species (including two species of dowitchers) considered to be of regular

occurrence in the province.[6] Although this study did not document breeding, eight of these species could be expected to breed at the lake, while the other species are migrants using the lake only for resting and feeding during migration. Of the 28 species, two (Upland Sandpiper and Long-billed Curlew) were associated with upland habitats while the remaining 26 species were found using the lake, lakeshore, or marsh habitats.

In general, daily counts of shorebirds were higher during the spring migration period (early May to early June) than in the fall migration period (mid-July to late September, Table 1). This is to be expected partly because the northward migration of shorebirds occurs over a much shorter time frame, concentrating the birds and providing higher counts on one day. Spring numbers peak in approximately the third week of May, coinciding with the peak migration of several abundant species including Red-necked Phalarope and Semipalmated Sandpiper. The peak number in spring 2001, nearly 45,000 birds counted on 21 May 2001, was substantially higher than the peak of 15,000 reported previously.[4] By totaling the peak number for each species in 2001, we estimate that over 51,000 shorebirds used the site during the spring migration (Table 2). The actual number of birds using the lake will be substantially higher, but it is impossible to arrive at a number without information on the length of stay of individual birds and turnover rates for each species. However, it is clear that large numbers of migrants use the lake from at least 12 May to 2 June, and probably up to a week earlier and later than these dates.

The peak of the fall migration in 1996, on 21 August, was 8,278 birds, but a one day count on 17 July 1998 tallied 12,764 birds. This is only slightly lower than previous total counts made at the lake during fall migration: 14,427 on 28 July 1989 and 16,308 on 30 July 1992 (M. Gollop, unpublished data). Because only 2 surveys were completed in fall 1998, both in the second week in July, it can only be concluded that peak fall migration may occur between late July and late August; this is confirmed by Mike Gollop's observations. In all years except 1996, shorebird numbers were highest in the west basin of the lake. In fall 1996, the central basin held the greatest numbers of birds. When it held water, the east basin attracted numbers of dowitchers and Stilt Sandpipers.

Spring migration was dominated by five species: Semipalmated Sandpiper, Red-necked Phalarope, Stilt Sandpiper, Sanderling, and Baird's Sandpiper, as well as dowitchers (Table 2). In 2001, these made up 86% of all birds counted on the five surveys. Dowitchers were the first to peak, with maximum count of 3,217 on 12 May. The maximum count of American Avocet, a local breeder, occurred on the same day with 997 birds. The other five dominant species peaked on 21 May, except Sanderling, a species known to be a late migrant, which peaked on 2 June 2001.

In the fall, dowitchers were again very abundant with a maximum count of 4,951 on 5 September 1996, and were more frequently counted than other species across all survey visits (Table 3). Most other species abundant in spring were much less so in the fall. One species group which was notably more abundant in fall than in spring was the yellowlegs. Large numbers of yellowlegs, mostly Lesser Yellowlegs, were recorded during fall migration: 2,528 on 21 August 1996 and 3,837 on 17 July 1998.

Of particular note in the fall at Luck Lake are the Hudsonian Godwits. One of the authors (GWB) observed 3,357 Hudsonian Godwits on August 3, 1995 and although this study only recorded several hundred in late July of both 1996 and 1998, other reports of up to 3,500 to 4,000 have been published.[4,5] Only one higher total count of this species has ever been published: 6,850 at Cheyenne Bottoms, Kansas.[5] This poorly understood species is not often

recorded in large numbers, and a concentration of this magnitude is of global significance.

The endangered Piping Plover was also recorded at Luck Lake in all 4 years of this study, but it is not known to breed there. Species composition and peak counts recorded in this study were similar to those previously reported (M. Gollop, unpublished data).

Overall, species composition and relative numbers of migrant shorebirds were very similar to those observed at the Quill Lakes[1] and Last Mountain Lake.[2] The most notable difference between Luck Lake and the Quill Lakes was the higher proportion of dowitchers and lower proportion of White-rumped Sandpipers at Luck Lake. Chronology of migration was also similar at these two locations.

The extreme annual variation in habitat conditions, so characteristic of prairie wetlands, was observed in this study. Habitat conditions in May 2001 were nearly ideal for migrant shorebirds, with large areas of mud flats, shallow water, and deeper water. However, by May 2002 water levels had receded significantly despite an influx of water from the pipeline, leaving only small bodies of water in the center of the west and central basins. Migrant shorebirds showed their ability to adjust to changes in available habitat with the peak total number of birds declining by almost 90% in 2002 (Table 1). Although only two full surveys were completed in spring 2002 (16 and 25 May), a quick visual scan of the lake on 20 May revealed roughly only 6,000 birds, suggesting that the reduction in numbers in 2002 was not due to having missed the peak of migration in that year. The lower total numbers in spring 2002 were due to a reduction in numbers of all species, and the same species were numerically dominant in both 2001 and 2002. There is some evidence of increased numbers at the lake in fall 1998 over fall 1996, but a greatly reduced survey period makes it difficult to draw conclusions about annual variation in the fall migration. A comparison of habitat conditions between the two fall periods could potentially explain some of the differences, but the absence of habitat information for 1996 makes this impossible.

Conclusion

It is clear from the results presented here that Luck Lake is an important staging area for many species of shorebirds, although the level of use varies significantly between years. The large numbers of some prairie breeding species such as Willet, Marbled Godwit, and American Avocet suggest that the lake is also important to local breeders. Luck Lake has already been recognized as an Important Bird Area because of its use by congregatory species such as Tundra Swan, Greater White-fronted Goose and Lesser Snow Goose, and is included in the Saskatchewan Heritage Marsh Program. The survey results from this study indicate that the lake should also be considered for nomination under the Western Hemisphere Shorebird Reserve Network. The attention that has already been drawn to this site, plus the ability to manage water levels to some degree, all point to the fact that this site will continue to be one of key importance to shorebirds well into the future.

Acknowledgments

Sincere thanks are extended to Bob Neufeldt, with the Saskatchewan Wetland Conservation Corporation (SWCC), who conducted the 1996 surveys, as well as to Kevin Cantelon and Trisha Lang who assisted the authors in 1998 and 2002, respectively. Mike Gollop kindly provided unpublished results of his previous surveys of Luck Lake. Careful reviews by Anna Leighton improved the article. This work was funded by the Canadian Wildlife Service of Environment Canada and in partnership with the SWCC in 1996.

1. ALEXANDER, S. A. and C. L. GRATTO-TREVOR 1997. Shorebird migration and staging

at a large prairie lake and wetland complex: the Quill Lakes, Saskatchewan. Occasional Paper No. 97, Canadian Wildlife Service, Environment Canada, Ottawa, ON. 47 pp.

2. COLWELL, M. A. 1987. Seasonal shorebird abundance at Last Mountain Lake Wildlife Management Unit. *Blue Jay* 45:251-266.

3. DONALDSON, G. M., C. HYSLOP, R. I. G. MORRISON, H. L. DICKSON, I. DAVIDSON. 2000. Canadian Shorebird Conservation Plan. Canadian Wildlife Service, Environment Canada, Ottawa, ON. 27 pp.

4. ROY, J. F. 1996. Birds of the Elbow. Special Publication No. 21, Saskatchewan Natural History Society, Regina, SK. 325 pp.

5. SKAGEN, S. K., P. B. SHARPE, R. G. WALTERMIRE, M. B. DILLON. 1999. Biogeographical profiles of shorebird migration in midcontinental North America. U. S. Geological Service Biological Science Report USGS/BRD/BSR—2000-0003.

6. SMITH, A. R. 1996. Atlas of Saskatchewan Birds. Special Publication No. 22, Saskatchewan Natural History Society, Regina, SK. 456 pp.

THREE TURKEY VULTURE PAIRS NEST IN SASKATOON BIRD AREA

C. STUART HOUSTON, 863 University Drive, Saskatoon, SK S7N 0J8, MARTEN J. STOFFEL, Box 183, RR#4, Saskatoon, SK S7K 3J7, and ALAN R. SMITH, Canadian Wildlife Service, 115 Perimeter Road, Saskatoon, SK S7N 0X4

Turkey Vultures were regularly seen on the treeless plains while bison were present, and until at least 1890.[4] They appeared in the Cypress Hills and Big Muddy badlands, along the Qu'Appelle and North and South Saskatchewan rivers, near lakes in Moose Mountain and along the southern edge of the boreal forest from Loon Lake to Duck Mountain. The first twelve nests recorded in Saskatchewan were in caves in cliffs or on the ground in nearly impenetrable dense tangles of underbrush.[3,7] Only since 1983 and 1984 have Saskatchewan vultures been reported nesting, (as they have done in Illinois since 1978,[2]) in attics of deserted houses, such as one north of Biggar,[8] one north of Preeceville,[1] and one west of Turtle Lake (Muriel Carlson, pers. comm.). During 2002, three widely separated pairs, each successful and each on the upper floor of a deserted farmhouse, provided the first definitive proof of Turkey Vultures breeding in the Saskatoon Bird Area (SBA; 51° 32' to 52° 30' north latitude and 106° to 107° 30' west longitude).

On 6 June, Al Smith observed an adult Turkey Vulture on the roof of an abandoned farmhouse 4 km south and 3.2 km east of



Figure 1. Judy Terry and Stuart pointing to second story window entrance to Turkey Vulture nest near Hanley. Brenton Terry

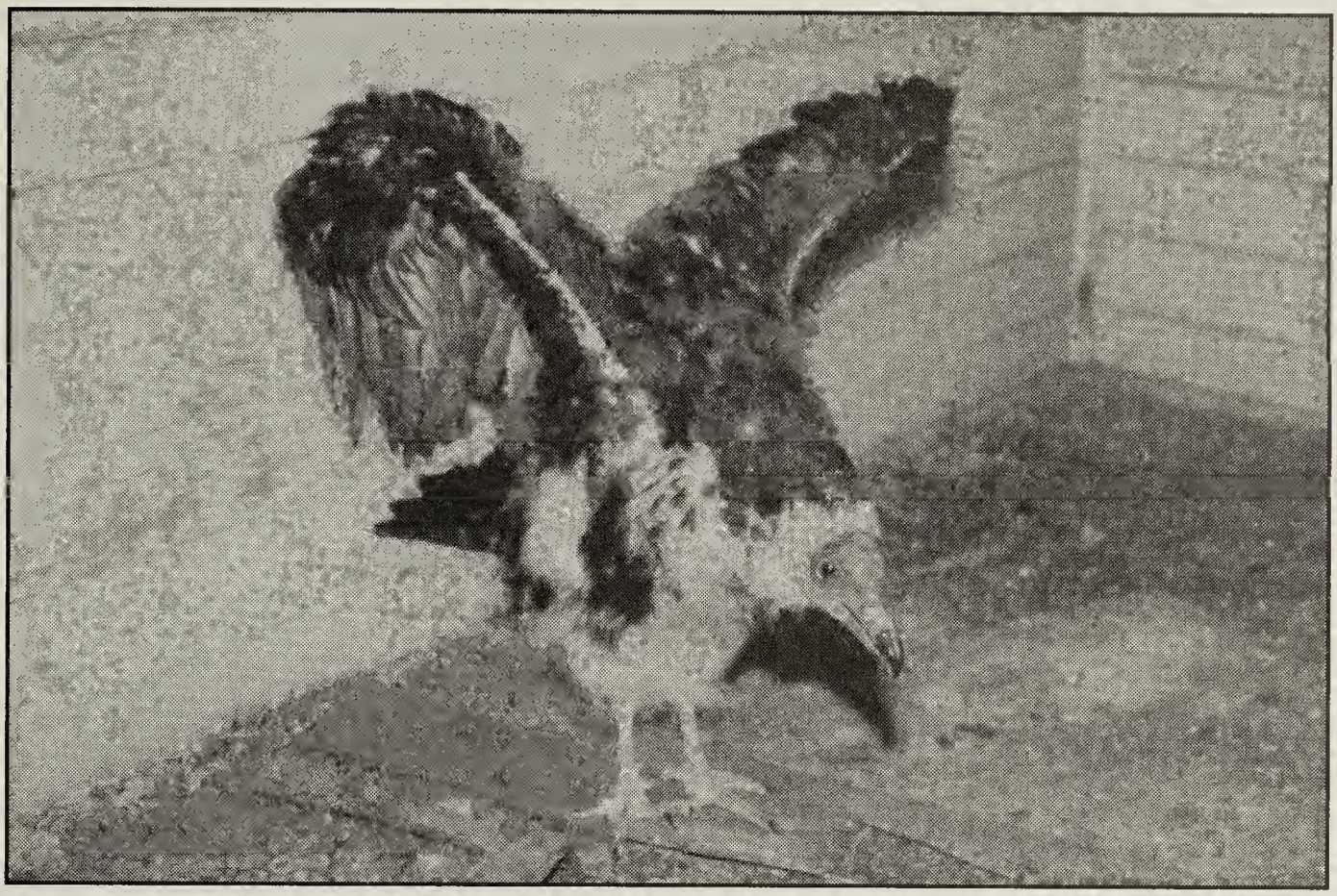


Figure 2. Young Turkey Vulture in defensive posture at the Hanley nest, 4 August 2002.
Brenton Terry

Hanley. On climbing the stairs, he observed the other adult incubating on the floor in a second-storey walk-in closet. The glass had long since disappeared from the upstairs windows. When Stuart and Mary Houston and Brenton and Judy Terry visited this house on 4 August (Figure 1), they went up the stairs to be greeted by two nearly fledged young who were still in the closet. Both young had well-developed primaries, but patches of white down persisted in various places (Figure 2). The young had full plumage when visited on 10 August by Al and Brenton.

The second nest, in the attic of a shack 2 km west and 6 km north of Environ, less than 1 km east of Eagle Creek valley, had a single fully feathered young on 13 August. This bird was drooling and vomited, perhaps as a defense mechanism.[6] Farmer Doug Stack reported it to conservation officer Glen Metivier. To rule out the possibility of poisoning, Metivier took the vulture to the small animal clinic at the Veterinary College in Saskatoon for examination. Marten and Moyca Stoffel and Stuart and Mary returned it to its nest site (Figure 3) on 20 August; it had fledged by 23 August.

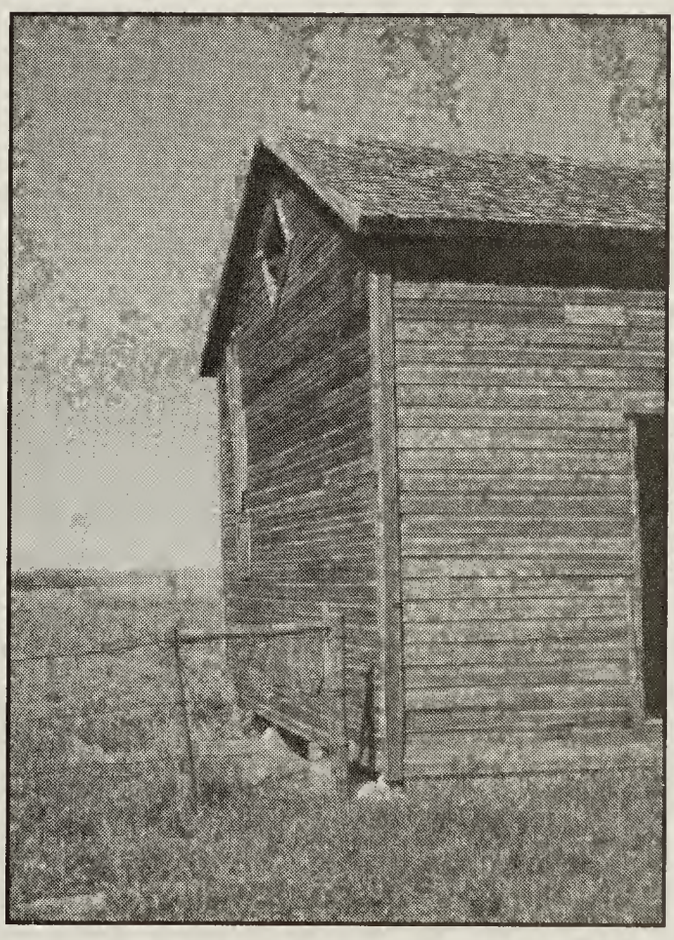


Figure 3. Adult Turkey Vulture in attic window of shack near Environ.
Moyca Stoffel



Figure 4. Deserted house location of Turkey Vulture nest near Smuts. Marten Stoffel

The third nest, 5 km north and 2 km east of Smuts, was on land farmed by Robert Mantyka, who reported to Yvonne Cuttle that a pair of eagle-sized birds had been nesting in the attic of this deserted house for three or four years. Thus, breeding of Turkey Vultures in the SBA may date back to 1998 or 1999. Cuttle led an excursion of Saskatoon's senior birding group, "The Golden Eagles," to the site on 29 August; two young were flying well. When the site was visited by Stuart and Marten on 3 September (Figure 4), two vultures flew over.

Early in 1999, vultures were seen perched in the window of a deserted farmhouse 11 km north and 2.5 km west of Aberdeen, and on 7 June 1999, Lynn Oliphant noted two adults at this location but did not enter the house. Two subsequent visits showed no signs of nesting, but the attic of another house a mile to the southwest, visited on 9 October 2002, showed evidence suggestive of probable vulture occupancy.

After a presumed absence of more than a century from the Saskatoon Bird Area, three Turkey Vulture pairs bred successfully in 2002, and raised five young. In a study of 899 Turkey Vulture sites in North America through 1982, a preference for "dark recesses" as nest sites was evident, but only 22 nests were in buildings, chiefly barns.[5] In Illinois and Saskatchewan, the vultures' predilection for attics, in deserted farm houses whose window glass has long since disappeared, is a relatively recent phenomenon dating to the 1970s, but perhaps increasing in use. Watch for this, particularly at sites within 15 or 20 km of a river valley or large lake.

1. BEAULIEU, R. 1985. Abandoned house nest site for Turkey Vulture. *Blue Jay* 43:46-48.

2. BUHNERKEMPE, J.E., and R.L. WESTEMEIER. 1984. Nest-sites of Turkey Vultures in buildings in southeastern Illinois. *Wilson Bulletin* 96:495-496.

3. HOUSTON, C.S. 1969. Turkey vulture breeding records in Saskatchewan. *Blue Jay* 27:37-39.

4. HOUSTON, C.S., and J.K. SCHMUTZ. 1999. Changes in bird populations on Canadian grasslands. *Studies in Avian Biology* 19:87-94.

5. JACKSON, J.A. 1983. Nesting phenology, nest site selection and reproductive success of Black and Turkey Vultures, pp. 245-270 *In* S.R. Wilbur and J.A. Jackson,eds., Vulture Biology and Management. University of California Press, Berkeley.

6. KIRK, D.A., and M.J. MOSSMAN. 1998. Turkey Vulture (*Cathartes aura*). *In* The Birds of North America, No. 339 (A. Poole and F. Gill, eds.). Philadelphia: The Birds of North America, Inc.

7. SMITH, A.R. 1996. Atlas of Saskatchewan Birds. Saskatchewan Natural History Society Special Publication # 22.

8. WAPPLE, G.J. 1985. Nesting Turkey Vulture near Biggar, Saskatchewan. *Blue Jay* 43:44-46.

A BAD YEAR FOR PURPLE MARTINS NEAR SASKATOON

GERALD J. PARENT, RR#5, Station Main, Saskatoon SK S7K 3J8, and
MARY I. HOUSTON, 863 University Drive, Saskatoon SK S7N 0J8

Last year, 2001, was the second year that Purple Martins nested in houses provided for them at the site of the former Grasswood grain elevator south of Saskatoon. It was a particularly successful year: 16 pairs laid 81 eggs (a mean of 5.1 eggs per nest); 75 eggs hatched (93%) and all 75 nestlings fledged.[4] We now realize that these figures were as high as or exceeded those previously published in the literature: a mean clutch size of 4.2 to 5.0 and a mean fledging rate of 71% to 85%.[1] Studies near Edmonton in 1965 and 1966 showed that females mated to yearling males had a mean clutch size of 4.29 while females mated to adults had a clutch size of 5.00, and the mean fledging rate was 71%.[2]

In 2002, the Grasswood colony almost doubled in size, increasing from 16 to 30 active pairs. With 132 eggs laid, the mean clutch size was more typical: 4.4 eggs per nest. Sixteen eggs failed to hatch, bringing the hatching rate down to 88%.

Fourteen nests had adult pairs in attendance; thirteen of these were successful and raised 60 young to banding age (4.6 young per successful adult-pair nest or 4.3 young per nest for all adult pairs). The first three broods, all with adult parents, hatched on June 29, July 3 and July 7. Fifteen nests had yearling pairs, but one of these pairs abandoned its eggs; 54 young from these nests reached banding age (3.7 young per yearling nest attempt). The only nest with an adult mated to a yearling produced only two young. All 116 young were banded when between 8 and 16 days of age, on July 14, 19, 24, and 29.

For the first time in the three-year life of the colony, nestlings died in the nest boxes. The first nestling died of apparent heat stress on July 25, and two, infested with nest mites, died on July 27. Then unseasonable, record-setting cold weather arrived, with the thermometer plunging to -2°C in the early morning of August 2. All

eight young from two late nests with yearling parents died on August 2. During the cold spell lasting from August 2 to 11, another 31 nestlings died while still in their nests, an additional five were found dead on the ground below the nest boxes, and one drowned in a nearby pond. Only 12 of the dead birds were among the 60 young from nests attended by two adults, a 20% mortality rate, while the other 28 dead birds were among the 54 young at nests attended by two yearlings, a 52% mortality rate. Both of the young from the nest with one adult and one yearling died. The young of yearlings fared poorly suggesting that during times of severe cold stress, the fact that adults nest several weeks earlier than yearlings, and possibly have higher efficiency in catching insects, is important.

The mortality in 2002 occurred in spite of major supplemental feeding of the martins. Because many adults seemed lethargic during the cold spell, GJP fed them grasshoppers. He took grasshoppers, 50 at a time, from his deepfreeze, warmed them in the microwave, and in front of the martin houses, sent each grasshopper 10 m in the air with a blow gun. Sometimes five, six or even seven martins, never once colliding, would swoop at the propelled grasshopper. Usually one of them caught the insect before it hit the ground. About three-quarters of the grasshoppers were eaten by the flying martins, with only a small proportion being fed to the nestlings inside the boxes. After about 100 grasshoppers (about two per adult martin), were fed in this manner, the adults seemed more lively, with sufficient energy to fly out to hunt for more insects. At up to 400 grasshoppers per day, the supply of 2,500 frozen grasshoppers was exhausted by 11 August, the last day of the cold spell.

Kramer and Hill report that most aerial insect prey become inactive at 9°C. During cold weather in Pennsylvania in May 2002, they sprinkled scrambled eggs on the ground; 25 martins rushed to eat this atypical food.[3] Thinking that insects would be more natural fare, GJP caught and froze over 2000 grasshoppers in 2001 and 7,500 in 2002. And, after feeding grasshoppers one at a time with a blow gun in 2002, he developed a new propulsion apparatus using a hose, rubberized nozzle, and an air compressor at 100 psi that can propel three grasshoppers simultaneously even higher in the air to be ready for almost any eventuality in 2003.

Acknowledgements

We acknowledge keyboarding and editorial assistance from Stuart Houston.

1. BROWN, C.R. 1997. Purple Martin (*Progne subis*). *In* The Birds of North America, No. 287 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and the American Ornithologists' Union, Washington, DC.

2. FINLAY, J.C. 1971. Breeding biology of Purple Martins at the northern limit of their range. *Wilson Bulletin* 83:255-269.

3. KRAMER, P., and J.R. HILL III. 2002. Supplemental feeding reduces May 2002 weather deaths of Purple Martins. *Purple Martin Update* 11(3):1, 24-26.

4. PARENT, G.J. 2001. Purple Martins attracted to Grasswood. *Blue Jay* 59:195-199.



"Relative to the enormous numbers of insects destroyed by this species, [purple Martin] as well as the assiduous care of the young in providing them with food, is the now classic example given by Widmann (1884). He watched a colony of 16 pairs of these birds from 4 a.m. to 8 p.m., and during that time the parents came to the young 3,277 times, or an average of 205 times for each pair." Arthur Cleveland Bent, Life Histories of North American Flycatchers, Larks, Swallows and Their Allies. 1963. p. 497.

FIRST NESTING OF COMMON RAVENS IN THE SASKATOON BIRD AREA

MARTEN J. STOFFEL, Box 183, RR#4, Saskatoon, SK S7K 3J7

On June 11, 1998, I encountered a family of three young ravens, barely able to fly, beneath the railway bridge on the west side of the South Saskatchewan River east of Warman. I looked without success for a large nest in adjacent trees, but did not think to search the railway bridge structure itself. Although the nest was not found, the barely flying young constituted the first documented breeding record for the Saskatoon Bird Area (SBA, 51° 32' to 52° 30' north latitude and 106° to 107° 30' west longitude). In 2002, Lyle Doell found that the Great Horned Owls had preempted the raven nest on the bridge and informed Martin Gérard who then banded three young Great Horned Owls on the former raven nest (Figures 1 and 2).

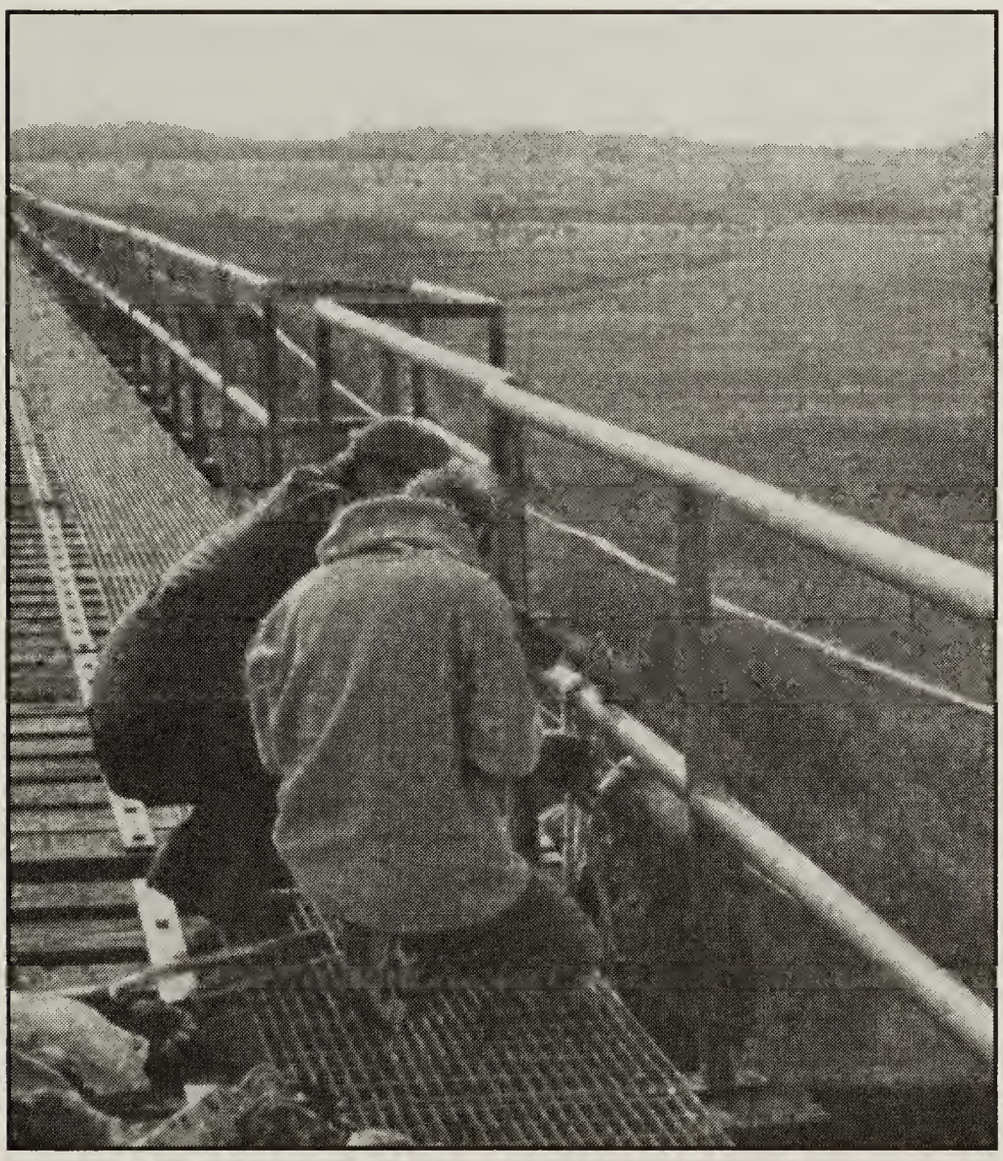


Figure 1. Martin Gérard (in helmet) descending to band the Great Horned Owl chicks in previous raven nest on the railway bridge east of Warman. ***Lyle Doell***

On 18 June 2001, I found a family of three young ravens, able to fly, more than 1 km west of the Sterling Pulp Chemicals plant at the corner of Wanuskewin Road and 71st Street in the north industrial area of Saskatoon. Again, I did not even entertain the possibility that they had nested in a building, although in retrospect that is the best explanation.

The year 2002 was the "year of the raven." Six successful Common Raven nest attempts were reported within the SBA, and another two nests were found within 10 km of the north boundary of the SBA. The first nest was on a metal platform of an exterior staircase in a building being demolished at the former Interprovincial Co-operatives (IPCO) herbicide plant, adjacent to the Sterling Pulp Chemicals plant. The nest was first



Figure 2. Great Horned Owl chicks in previous raven nest under the railway bridge east of Warman. ***Lyle Doell***

called to the attention of Gary Bortolotti and Ralph Bock. It was 1.5 m in diameter, and had contained 5 eggs when the workmen pulled it down on April 20. When the ravens rebuilt on the same site, the workers moved the nest to a nearby structure; the ravens picked up every stick and moved each one back! The persistent adults then built on another stairwell, then on the roof of the building and finally, when the demolition of the building was delayed, in an open window sill facing east, 7.5 m above ground. Four nearly- mature young from this delayed re-nesting were banded on 13 June.

The second nest, 10.5 m above ground in an Aspen Poplar on the north shore of Rice Lake, east-south-east of Asquith, was found by Peter Jonker on May 25. The two full-grown young in the nest were banded on May 31. The third nest, 7 m above ground in an Aspen Poplar, also east of Asquith, contained three small young, barely large enough to hold a band, on May 31. I found the fourth nest 9 m above ground in an Aspen Poplar across the road from the northeastern edge of Dalmeny on May 24; three young were banded on June 2. The fifth pair, south of Dalmeny on 11 June, had four young flying fairly well, and without help I was only able to catch and band one. The sixth record was from 3 km east of Dundurn on Highway 663, where four young ravens, flying too well to catch but still being fed by two adults, were spotted by Mary Houston and Doris Ihrig on 29 June.

Immediately north of the SBA, Art Lepp found two nests. The first was 14.5 m above ground in an Aspen Poplar north of Hepburn, where three young were banded on 2 June. The second, 13.5 m above ground in an aspen near Hague, had been active on 13 May. On 2 June, the nest was empty, and there was much "whitewash" excreta below the empty nest. A search of the aspen bluff revealed no young out of the nest. They most probably had fledged early in spite of the late, cold spring and had already dispersed, but the possibility of predation by a Great Horned Owl or raccoon cannot be excluded.

In all, Stuart Houston and I banded 16 flightless young in 2002, 13 within the SBA. Our best guess is that the pairs

found represent only the tip of the iceberg, and that more detailed searches in heavy aspen might have detected more. Do these recent nest records, part of a general southward movement across the province, after an absence of more than a century, mean that this species is now here to stay?

When Bison roamed the plains, the Common Raven was more numerous than the American Crow.[1] When Thomas Blakiston of the Palliser expedition went south from Fort Carlton on a bison hunting expedition in 1858, he found several raven nests, at least one of them beside one of the Anerley lakes (only 18 km south of the southern boundary of the SBA) on April 29.[2]

Acknowledgements

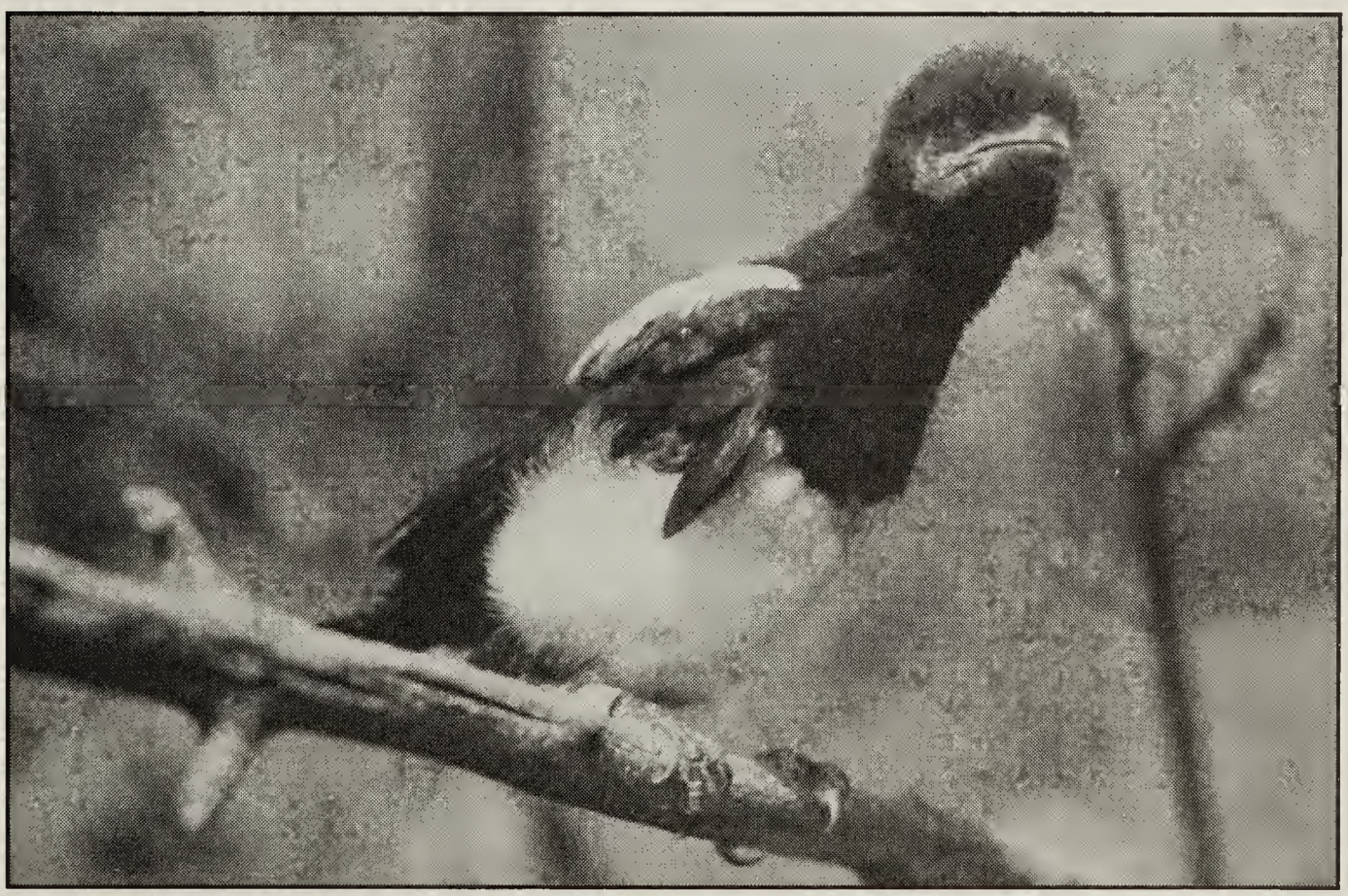
I thank Gary Bortolotti for information on the early nest attempts at the IPCO plant, Lyle and Don Doell for information and a photograph, and Stuart Houston for keyboarding and editorial assistance.

1. C. S. HOUSTON and J. K. SCHMUTZ. 1999. Changes in bird populations on Canadian grasslands. *Studies in Avian Biology* 18: 87-94.

2. C. S. HOUSTON. 1976. A bird watcher's outing in 1858. *Saskatchewan History* 29:14-25.

A MAGPIE BAND-RELEASE PROJECT IN THE CALGARY AREA, 1949

JIM SALT (compiler and editor), 464 Nelson Street, Victoria, BC V9A 6P4, jrsalt@Pacificcoast.net



Young Black-billed Magpie ***Lorne Scott***

Recently, while reviewing the diaries and ornithological notes of my father, W. Ray Salt, I came upon a record of a banding project undertaken in 1948-49 in Calgary, while he was teaching biology at Mount Royal College. The project consisted of the banding and release of Black-billed Magpies and was intended to investigate aspects of behaviour, particularly dispersal and "homing" tendencies. A number of young birds and a few adults were trapped at nest localities, banded and then released at varying distances from the nest sites. As far as I am aware, the results from this work were never published. A summary of the study might be of interest to contemporary readers or workers engaged in similar experiments.

The project commenced on 28 March 1949 at a site known locally as Colpitts' hedgerows of trees or large shrubs surrounding some disused buildings on open prairie, about 25 km north of Calgary. Banding at this and two other sites continued for one or two days each week until 18 June 1949. The project was terminated when my family moved from the Calgary area in summer 1949.

A total of 66 birds were trapped at three nest-localities around Calgary. The majority of the magpies (50) came from Colpitts' nests, 13 were taken at a site 18 km west of Staveley, and three were from Rockyford, 70 km ENE of Calgary.

The three magpies from Rockyford were liberated at or near the nest-site. Five of the Staveley magpies were liberated near the banding site, four in downtown Calgary and four at High River. Of the 50 Colpitts' magpies, 46 were transported elsewhere, half (23) to be liberated in downtown Calgary from various prominent buildings, all sufficiently close together to be considered city-centre. Only four were released at the banding site. Table 1 gives a complete synopsis of the project by origin or nest-locality, release site and number of recoveries.

A relatively high proportion of recoveries (20 birds, 30.3%) was obtained from this brief study. Recoveries consist of magpies identified later by band number, either by re-trapping or from bands (or band-numbers) returned by farmers, from birds presumably shot or found dead.

The highest rate of recovery was from the magpies banded near Staveley, of which five (38.5%) were recorded again

Table 1: Nest and release sites of banded magpies, numbers of birds from each site, distance of release-site from origin, and number of recoveries.

Origin	No.	Released	Dist./Direction	Recovered
Colpitts'	23	Calgary	22.8 km S	9
Colpitts'	4	Colpitts'	0	2
Colpitts'	4	Okotoks	56.2 km S	3
Colpitts'	3	Strathmore	47 ESE	0
Colpitts'	3	Baintree	52 E	1
Colpitts'	3	Rockyford	60 E	0
Colpitts'	5	Crossfield	22 N	0
Colpitts'	5	Brooks	165 km SE	0
Staveley vic	5	Staveley	0	5
Staveley vic	4	Calgary	102 N	0
Staveley vic	4	High River	50 N	0
Rockyford	3	Rockyford	0	0

Table 2: Release and recovery data on magpies recorded during the study. A "0" indicates recovery within a few kilometres of the release site.

Released:	Date	Recovered	Dist. (km)	Date
Calgary	29/04	Calgary	12	15/05
Calgary	28/03	Colpitts'	22	11/06
Calgary	28/03	Bowness	12.5	15/05
Calgary	28/03	Colpitts'	22	11/06
Calgary	28/03	Colpitts'	22	13/05
Calgary	28/03	Colpitts'	22	11/06
Calgary	28/03	Colpitts'	22	11/06
Calgary	28/03	Colpitts'	22	17/05
Calgary	29/04	Bentley	137	21/09
Okotoks	03/04	Twin Bridges	36	06/06
Okotoks	03/04	Longview	22	07/05
Okotoks	03/04	Colpitts'	56	10/05
Colpitts'	03/04	Colpitts'	0	01/05
Colpitts'	10/04	Colpitts'	0	13/05
Baintree	10/04	Colpitts'	52	20/05
Staveley vic	04/05	Staveley	0	09/06
Staveley vic	04/05	Staveley	0	17/06
Staveley vic	04/05	Staveley	0	19/05
Staveley vic	04/05	Staveley	0	01/06
Staveley vic	04/05	Staveley	0	20/06

before the end of the study. There were fifteen recoveries of Colpitts' birds (30%). The most distant recovery was that of a magpie released in downtown Calgary and found at Bentley, 137 km north, five months later. Table 2 indicates distances from release-sites to recovery sites and the time elapsed between release and recovery of each bird. These times do not necessarily indicate actual travel times, since birds recaptured or shot may have been present in an area for considerable periods before detection.

Acknowledgements

Due to the long time since this study was conducted, and the condition of records, I have been unable to identify with certainty all of the participants, and some spellings may be in error. The following individuals were identified from banding records: J. Bayuk, W. Hedley and Chris Nutter, probably of Colpitts' Farms; A. Guillemaud of Bentley; V.B. Ferguson, W.J. Ross and Percy Witt of Calgary; G. Cochlan, M. McLean and R. Perrot of Staveley; L. Wancheke of High River. Participants identified only by last name or by initials were: "G.T." of Calgary; "F.E.M." (possibly F.E. McLean of Staveley?); and Wolley-Dod (Wally Dodd?).

I am greatly indebted to Stuart Houston, and to Anna and Ted Leighton, for encouragement and editorial suggestions leading to the completion of this note.

PLANTS

PUCCOONS IN SASKATCHEWAN

VERNON L. HARMS, #212-115 Keevil Crescent, Saskatoon, SK S7N 4P2

Among the wild flowers brightening our native prairies in late spring and early summer are the yellow- or orange-flowered puccoons. Also known as gromwells, or sometimes as stoneseeds, the puccoons are classified in the genus *Lithospermum* belonging to the Borage Family (Boraginaceae). Saskatchewan has three native species, two of which are common prairie or open parkland plants in the southern third of the province, and the third, a rarity found only in the West Block of the Cypress Hills (see Maps 1-3).

Our three puccoons are perennial herbs with thick, woody, purplish-brown taproots, giving rise to tufts of hairy stems, 2-5 dm high, that bear numerous, alternate, unstalked, hairy leaves (Fig 1). The pleasantly fragrant flowers are radially symmetrical, with a calyx of five nearly separate sepals, a corolla of five yellow petals fused to form a tube flaring out above into a 5-lobed limb. Five prominent folds or appendages (collectively called a crest or fornice) are often present at the corolla-throat, between the tube and limb (see

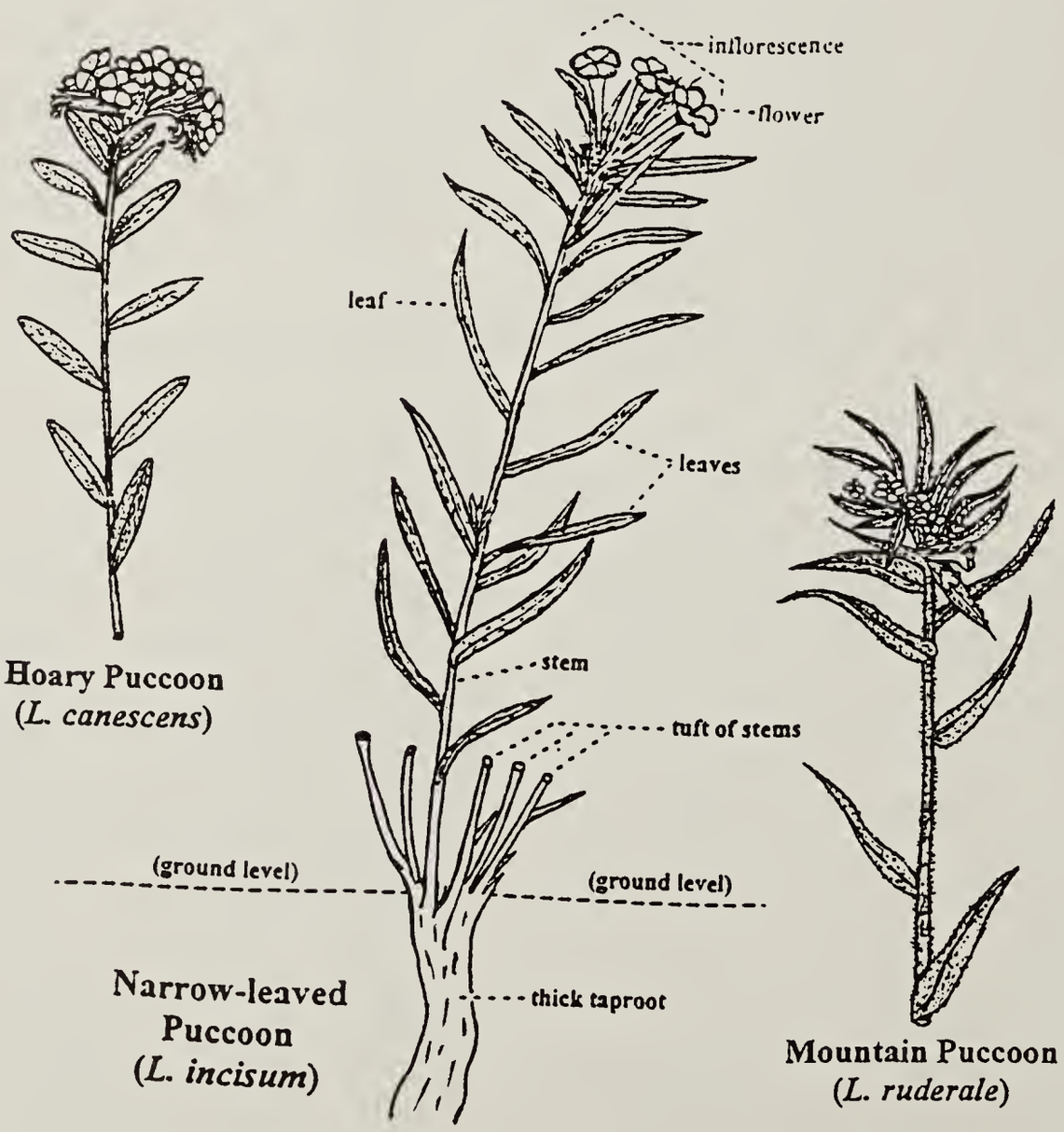


Figure 1. The native puccoon (Lithospermum) *species in Saskatchewan*

Maps 1-3. Distributional Records of Puccoon* (Lithospermum) *species in Saskatchewan

diagrams in Fig. 2). The five stamens are inserted within the corolla-tube above the middle. The pistil consists of a single style bearing a 2-lobed stigma arising from a deeply 4-lobed superior ovary that at fruit-maturity splits into four separate nutlets, each containing a single seed. These nutlet-fruits are notably hard, shiny, ivory-white and porcelain-like. In the Narrow-leaved Puccoon, two types of flowers are present. The earliest flowers are open and large (chasmogamous), while the later season flowers are much smaller and remain closed (cleistogamous), but self-fertilization occurs in the latter and they actually produce most of the fertile nutlets.

The genus name, *Lithospermum*, is a combination of the Greek word *lithos* (meaning "stone") and *sperma* (meaning "seed"), and can be literally translated as a "stony seed", referring to the distinctive, hard, shiny white nutlets. The common name "puccoon" is derived from the American Indian word *pokan*, a term applied to various plants producing red or yellow pigments usable for dyes. Even today, the common name "puccoon" is sometimes applied to other dye-producing plants in North America besides *Lithospermum* species, such as to Bloodroot (*Sanguinaria canadensis* of the poppy family) and Goldenseal (*Hydrastis canadensis* of the buttercup family). The meaning of the alternative common name "gromwell" appears less clear. From Middle English and probably of Old French origin, it was long applied to the European species, *Lithospermum officinale*, and represents the Old World name carried over to other species of the genus.

The taxonomic key on the following page may be used to identify our Saskatchewan puccoon species.

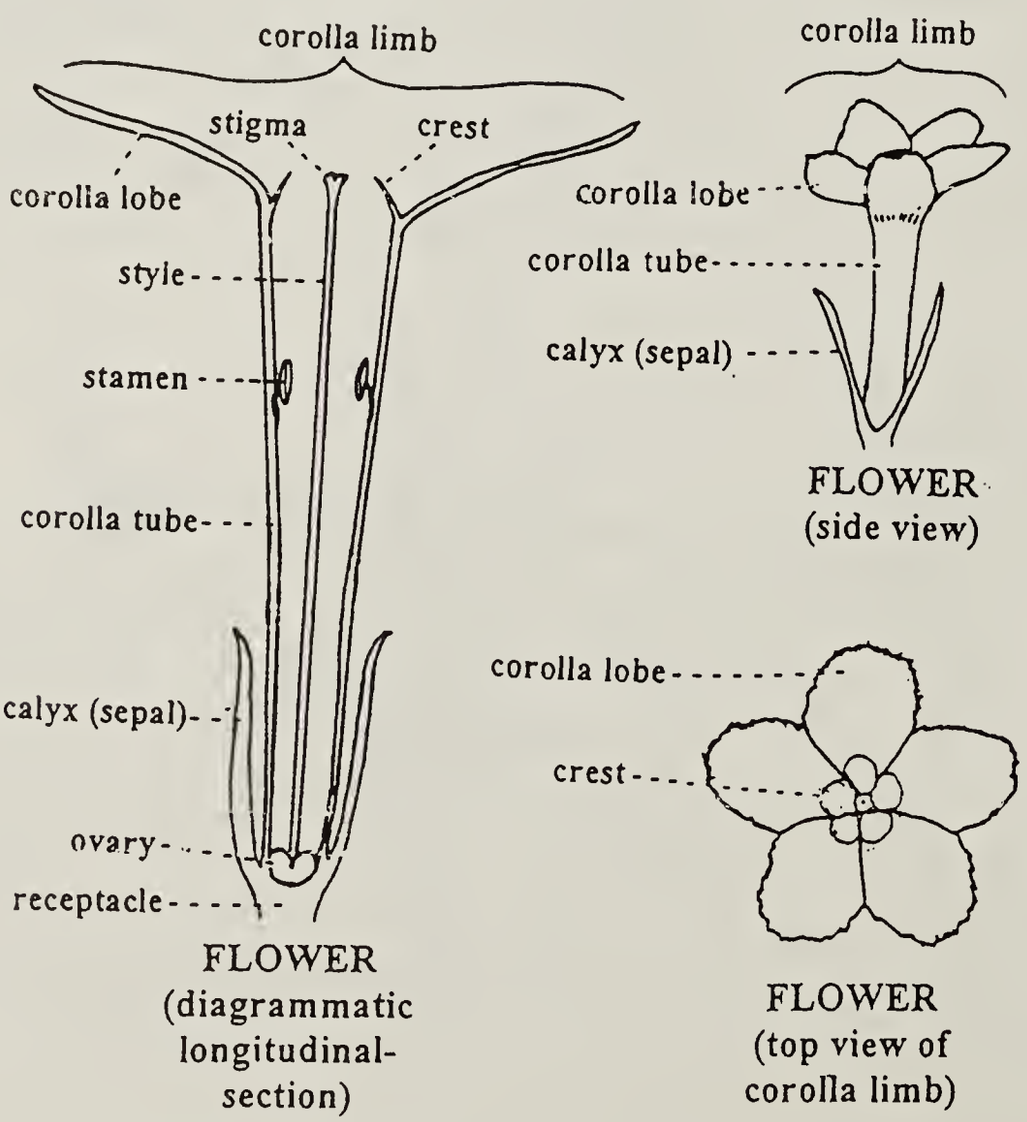


***Figure 2. Puccoon* (Lithospermum) *flowers* (diagrammatic)**

Taxonomic Key to the puccoon (*Lithospermum*) species in Saskatchewan

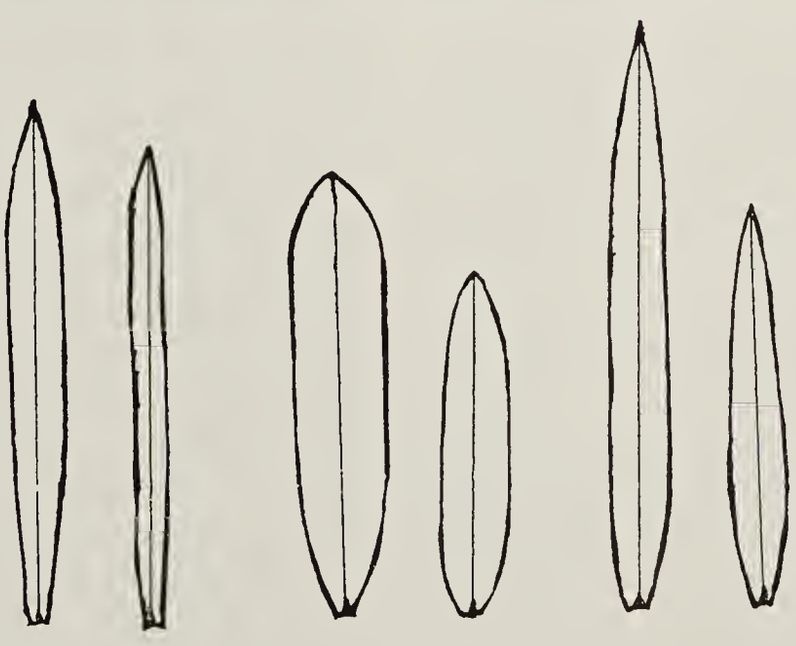
1a. Leaves narrowly linear, over 8 times longer than wide, mostly less than 5 mm broad, sharp-tipped; both leaves and stems with short, stiff, appressed hairs; two types of flowers present, the earliest open and large, but those of later season remaining closed and small; corollas an intense light lemon-yellow, those of the opened (large) flowers with tubes 1-2 cm long and limbs 1-2 cm broad, the lobe-tips with small jagged as well as rounded teeth; corollas of the later closed flowers only 2-6 mm long; nutlets 3-4 mm long, with pitted surfaces, and a distinct collar-like flange below a basal constriction; stems to 4(-5) dm tall; fruiting stalks mostly arching. ---------- ***L. incisum.***

1b. Leaves broader, narrowly to broadly lance-shaped or elliptic; only one type of flower present, lacking permanently closed reduced flowers; corolla lobe-tips entire or very nearly so; flower clusters (cymes) appearing larger because all, not just the first few, flowers are open and sizeable; nutlets smooth, lacking pits or a basal collar; leaves and stems with at least some spreading hairs; fruiting stalks mostly erect. ---------- **(to 2).**

2a. Primary leaves mostly oblong to broadly lance-shaped, blunt-tipped, over 4 mm broad, mostly less than 5 cm long, less than eight times longer than wide; hairs on leaves and stems finer and softer; upper leaves not crowded or obscuring flowers; corollas a vivid orange or yellow-orange to deep yellow, with prominent throat-folds (crest), the tubes 8-18 mm long, and the limbs mostly 1.0-1.5 cm broad; calyx 5 to17 mm long; nutlets only 2-3 mm long; stems 1-3 dm tall, with only spreading fine hairs. ---------- ***L. canescens.***

2b. Primary leaves narrowly lance-shaped, mostly sharp-tipped, to 8 cm long, the upper leaves crowded and obscuring flowers; stems and leaves more coarsely and harshly hairy; corollas dull greenish-yellow to pale yellow, smaller, with tubes only 5-8 mm long and limbs less than 1 cm broad, lacking throat-folds (crest); calyx about 5 mm long, much shorter than corolla-tube; nutlets mostly 4 to 6 mm long; stems 2-5 dm high, with both appressed and spreading coarse hairs. ---------- ***L. ruderale.***

Figure 3. Typical leaf shapes of puccoon* (Lithospermum) *species in Saskatchewan



Narrow-leaved Puccoon (*L. incisum*)

Hoary Puccoon (*L. canescens*)

Mountain Puccoon (*L. ruderale*)

Lithospermum canescens (Michx.) Lehm. – HOARY PUCCOON / GROMWELL. This is an eastern species in North American, ranging from Ontario west to southern Saskatchewan, and south to Georgia, Mississippi and Texas. In Saskatchewan, it ranges westward only to about the 107° meridian, not much west of Saskatoon. In this province, it is most numerous on open grassy sites in the parkland region, but is also found somewhat south of the parkland in the northern mixed-grassland region (see Map 1). It may be distinguished from the also common Narrow-leaved Puccoon by the characters given in the above key, especially by (1) the leaves being broader, blunt-tipped and mostly oblong (see Fig. 3), (2) both stems and leaves with finer and more spreading hairs, (3) the corollas deeper yellow to usually yellow-orange or bright orange, with lobes scarcely toothed, if at all, (4) no permanently closed and reduced flowers present, (5) flower clusters more conspicuous, (6) nutlets somewhat smaller with smooth unpitted surfaces, and (7) fruiting stalks mostly erect rather than arching. (See Fig. 1 for its generalized plant habit). The specific epithet is derived from the Latin word *canus* meaning "grayish white" or "hoary", referring to its grayish aspect due to the hairs overlying the plant surfaces. This likewise explains its common name.

Lithospermum incisum Lehm. – NARROW-LEAVED or FRINGED PUCCOON / GROMWELL / STONESEED. [Synonyms: *L. angustifolium* Michx.; *L. linearifolium* Goldie]. This is a widespread grassland species occurring across the Canadian Prairie Provinces, ranging overall from British Columbia to Ontario, and somewhat discontinuously south to California, Northern Mexico, Texas, Tennessee and Florida. In Saskatchewan, the Narrow-leaved Puccoon is most common in open prairie habitats across the grassland region of the province, extending only into the southernmost fringe of the parkland region where it is much less frequent than the Hoary Puccoon (see Map 2). It may be distinguished by the characters given in the above key, notably by (1) its leaves being more narrowly linear (see Fig. 3) with all hairs appressed, stiff and short, (2) its corolla a lighter lemon-yellow, with toothed lobes, (3) the presence of two types of flowers with only the first few open and large and the later ones reduced and remaining closed, (4) its pitted nutlets, and (5) mostly arching fruiting stalks. (See Fig. 1 for its generalized plant habit). The specific epithet is from the Latin word *incisus* meaning "cut deeply and sharply", referring to the often jagged although actually rather minutely toothed corolla-lobes. Its common names refer respectively to its narrow leaves and fringed corolla lobes (Fig. 4).

Lithospermum ruderale Dougl. ex Lehm. –MOUNTAIN, COLUMBIAN or WOOLLY PUCCOON / GROMWELL. This is a more western species in North America, ranging from British Columbia east to southwestern Saskatchewan, and south to California and Colorado. Although quite common farther west, especially in grasslands of the Alberta foothills, it is rare in Saskatchewan where it is recorded from open grassy habitats only along Battle Creek in the West Block of the Cypress Hills near the Alberta border (see Map 3). This species may be distinguished by the characters given in the above key, notably by (1) plants mostly taller, coarser, and more leafy, (2) stems thicker and more numerous in tufts, (3) hairs of stems and leaves coarser, (4) primary leaves mostly oblong (see Fig. 3), (5) nutlets larger, (6) corollas smaller, dull pale yellow to greenish-yellow, and lacking a throat-crest, and (7) calyx always short. (See Fig. 1 for its generalized plant habit). The specific epithet is derived from the Latin word *ruderalis*, literally meaning "growing among rubbish", i.e. in disturbed places or waste ground. The common names "Mountain" and "Columbian Puccoon" are geographical depictions, while "Woolly Puccoon" describes the coarse hairiness of the plants.



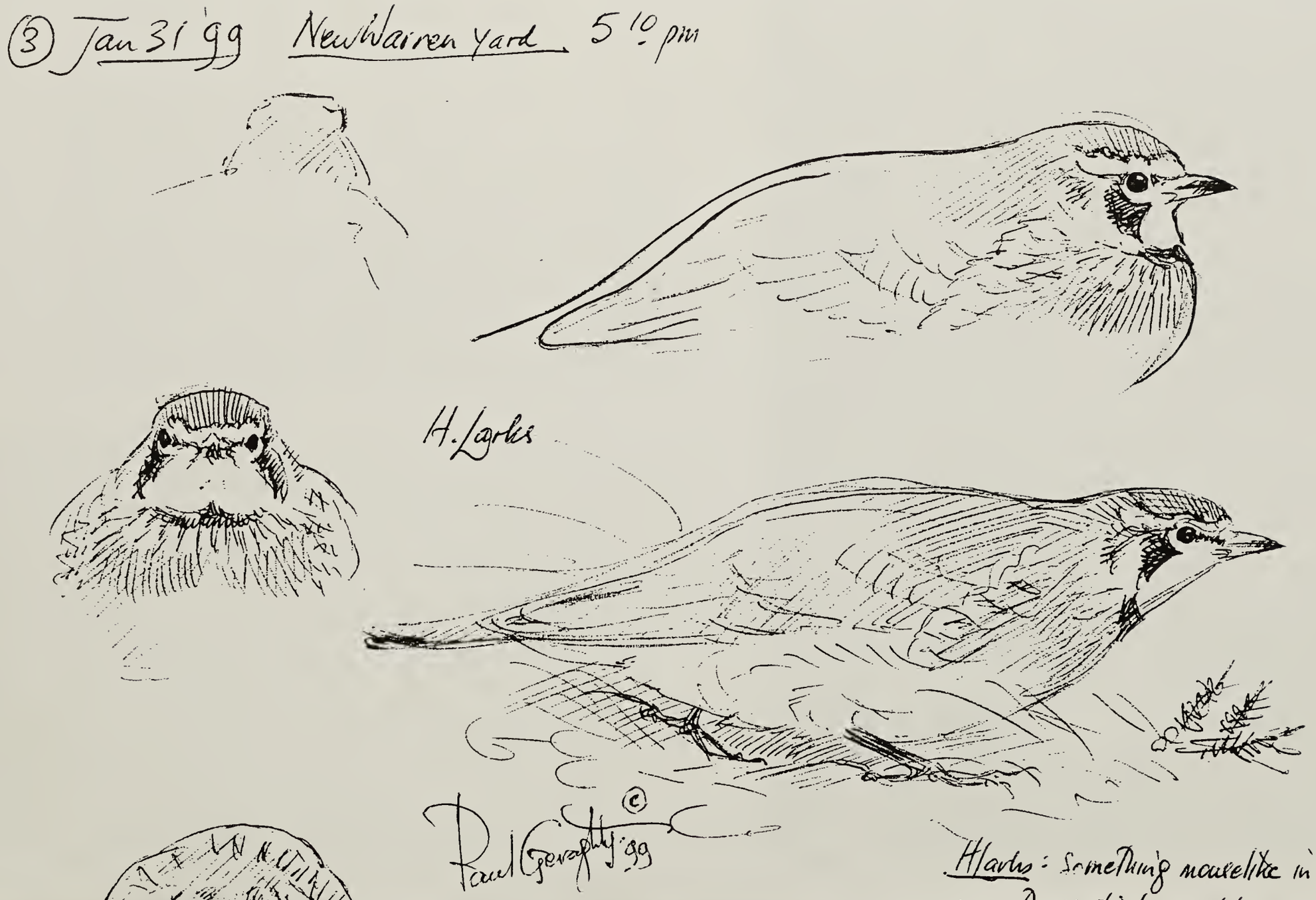
Figure 4. Narrow-leaved Puccoon ***Anna Leighton***

Puccoon plants have had numerous uses, especially historically by various North American aboriginal tribes. After being pulverized and dried, the large taproots were the source of a brilliant red dye used for various purposes.[1, 2] An infusion of the powdered roots was applied externally for its calming effects and to reduce swellings [2], and, mixed with grease and ashes, spread as a salve, to conserve body heat, and to even repel insects.[1] The powdered roots were used for chest wounds and lung hemorrhages.[2] A cold water tea made from the roots of Narrow-leaved Puccoon was reportedly used by Navaho women as a contraceptive, its effectiveness apparently due to the presence of a natural estrogen that suppresses the pituitary's secretion of gonadotropins. The dried tops and sometimes roots were burned as an incense at ceremonials, producing a pleasant and alluring aroma.[1, 2] Sacred beads were sometimes made by stringing the hard, shiny, white nutlets.[2] The thick taproots were reportedly used as food by some aboriginal people, apparently after pounding the woody roots into a sort of flour that was then boiled in fat-broth.[1]

Puccoons are certainly attractive and interesting wild flowers. When again roaming Saskatchewan's native prairies and parklands in early summer, take note of these bluish-green plants with their small, yet strikingly vivid yellow or orange blossoms.

1. KEANE, K. 2002. Puccoons have many uses. Herbal Hints. The Saskatoon Sun, May 12, 2002

2. MOERMAN, D. E. 1998. Native American Ethnobotany Database: Foods, Drugs, Dyes, and Fibers of Native North American Peoples. Timber Press, Portland, OR. 927 pp. [http://www.umd.umich.edu/cgi-bin/herb/].


③ Jan 31 '99 New Warren yard 5 10 pm
H. Larks
Paul Geraghty ©'99
H larks : Something mouselike in their run - the vertical pose of leg is not seen :

run) forward - but you know
This cannot be.

L Longspur



H/Lark





(3)
The larks move about walking running (6 – 10 ft) literally to + fro, but the Longspurs (5 of them in all) stay put, feeding on the innumerable seeds provided by the PORTULACA ? 1→2 inch high weeds, persisting on the ground of the yard. C their stripes & patches, + comparative immobility they are V. inconspic. But the immob. larks are, too,





Today @ 2 pm + yesterday @ 4 pm. in broad daylight, a Coyote just W. of Petrucci (Hwy 339), out in stubble maybe 150 yds. Stayed put when I stopped, looking @ me, then trot off 50 yds, stop + look back, broadside, tail horn + it repeated retreat. Thus 5-6 times til it reached shrubby drifted coulee. Seemed to have unusual dark areas this side of tail – dysentery? or just wet?

NOTES AND LETTERS

EASTERN PHOEBE HANGING BY A THREAD

Eastern Phoebes have nested on my cousin Jim Friesen's farm 3 miles east of Rosthern for the past 25 years. A slough a few hundred yards from the house provides mud for the nest and a good hatch of flying insects for food. Over time, the birds have nested in an unused chicken barn, the garage adjoining the house and on the socket of the porch light over the front door, refurbishing one nest at each location for several consecutive years. [3]

This year, as in the past few years, the phoebes nested on a window's top ledge under the eaves of an old two-storey home still on the property. The "untidy looking" nest is 12 feet above the ground, and besides mud, consists of the customary "dry grass,...fine fibres, rootlets and hair." [4,6] It was the untidiness of the fibres that almost was the undoing of one of the builders.

In mid-morning of 24 May, Jim noticed a phoebe hanging motionless from the nest. Looped around its neck was a 3-foot fibre, possibly a strand of baler twine. After going for a stepladder, he was able to tear the cord in two, the phoebe still unmoving. The bird revived while Jim held it in his hand attempting to release the loop, and instantly flew off. Later in the day, both phoebes were back about the nest. In due time, egg laying, brooding and successful raising of nestlings followed.

Studies that feature anecdotal description mention no similar incident where nesting material proved hazardous.[1,2,5]

1. BENT, A.C. 1963 (1942). Life Histories of North American Flycatchers, Larks, Swallows, and Their Allies. Dover, New York.

2. FORBUSH, E.H. and J.R. MAY. 1939. Natural History of the Birds of Eastern and Central America. Houghton Mifflin, Boston.

3. FRIESEN, V.C. 1983. (Un)usual nesting site of the Eastern Phoebe. *Blue Jay* 41:166-167.

4. HARRISON, C. 1978. A Field Guide to the Nests, Eggs, and Nestings of North American Birds. Collins, Cleveland.

5. PEARSON, I. G., ed. 1936. Birds of America. Garden City Books, Garden City, N.Y.

6. TAVERNER, P.A. 1928. Birds of Western Canada. Second Edition. National Museum of Canada, Ottawa.

- *Victor C. Friesen*, P.O. Box 65, Rosthern, SK S0K3R0

ADDITIONAL ROUNDLEAF MONKEY-FLOWER POPULATIONS IN MANITOBA

In the June 2002 issue of *Blue Jay*, staff of the Manitoba Conservation Data Centre (Cary Hamel, Ken De Smet, and Elizabeth Reimer) reported the discovery of three new occurrences of nationally rare Roundleaf Monkey-flower (*Mimulus glabratus*) in Manitoba. They also noted that surveys of springs along the upper Assiniboine River might reveal additional populations. In the summer of 2002, Cary Hamel and Elizabeth Reimer conducted an extensive survey of springs in this area and found three additional populations. Two were located in springs adjacent to the Qu'Appelle River near the Saskatchewan boundary west of

St. Lazare (Fig. 1), and one was near McAuley, at the top of a seepage slope above a tributary to Scissor Creek. Scissor Creek joins the Assiniboine River 19 km east of the Saskatchewan boundary. In addition, one population near Brandon, last reported in 1951, was rediscovered. With these additional occurrences, the total number of known Roundleaf Monkey-flower locations in Manitoba has risen to nine.



A spring-fed stream adjacent to the Qu'Appelle River, near the Saskatchewan/ Manitoba boundary. Roundleaf Monkey-flower can be seen at the water's edge directly in front of the white birch tree.
Cary Hamel and Elizabeth Reimer

- *Cary Hamel and Elizabeth Reimer*, Manitoba Conservation, Box 24, 200 Saulteaux Crescent, Winnipeg, MB R3J 3W3

FLYING SQUIRRELS IN BLUEBIRD NEST BOXES

On August 6, 2001, I took my two-year-old grandson to look inside one of our bluebird nest boxes. I believed that the box was unoccupied, and that opening the box would disturb no nesting birds.We were surprised to find inside the box a Northern Flying Squirrel, fast asleep. The squirrel blinked awake and stared at us, but did not flee. After calling my husband to come and see it, I closed the door. The squirrel was gone the next day, and did not return.

I have since learned that our neighbour, Hartley Woodward, made a similar discovery in one of his nest boxes that same summer, less than half a mile east of our home. We live 14.4 km north of the village of Treherne, on the south-facing rim of the Assiniboine Valley, in south-central Manitoba. Our nest boxes near the valley rim were occupied by flying squirrels which, evidently, live in or near the forested slopes of the Assiniboine Valley.

South-central Manitoba is home to the Northern Flying Squirrel subspecies *Glaucomys sabrinus canescens*.[1] The subspecies is "known to inhabit the full length of the Red River and the Assiniboine, west to at least Treesbank..." [3], which is 70 km west of Treherne. Robert Nero reported finding a northern flying squirrel in the area of Haywood, Manitoba "...in small tree growth at a considerable distance from the more heavily wooded river valleys".[2] Haywood is 26 km east of Treherne.

Given their cavity-dwelling habit, it is not surprising to find flying squirrels sleeping in nest boxes, if the nest boxes are located near wooded areas. Two such finds in one summer, however, may be noteworthy.

Acknowledgements

Thanks to Robert Nero for encouraging me to write this note, and for his helpful suggestions.



Northern Flying Squirrels
Hans Dommasch

1.BANFIELD, A.W.F. 1974. The Mammals of Canada. University of Toronto Press.

2. NERO, R.W. 1993., Northern Flying Squirrel and Red Bat caught on barbed wire. *Blue Jay* 51:215-216

3.SOPER, J.D. 1961.The Mammals of Manitoba. Canadian Wildlife Service, Wildlife Management Bulletin Series 1, No.17.Ottawa.

- *Ardythe McMaster,* Box 40, Rossendale, MB ROH ICO

COMMON ROADSIDE SKIPPER VANISHES AT THE PAS, MANITOBA

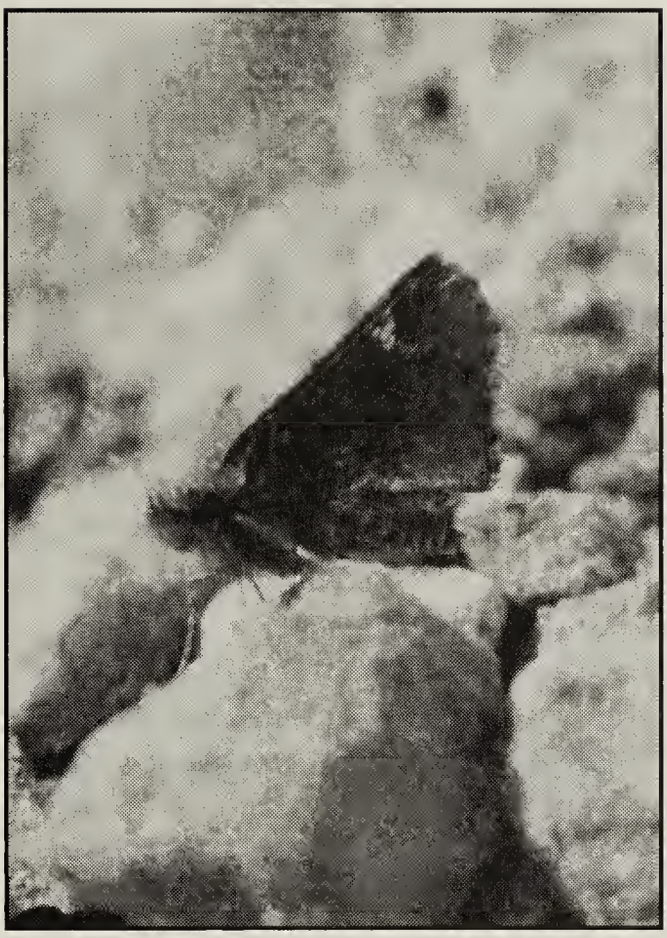
When I first started collecting insects at The Pas, some 50 years ago, this little skipper, *Amblyscirtes vialis*, was common along roadsides. I haven't seen one since about 1990. Although still common at Bjorkdale, it occurs in smaller numbers than previously (Ron Hooper, pres.comm. February 2002).

Klots gives the range as 'southern Canada".[1] Is it possible that the Common Roadside Skipper extended its range to The Pas in the favourable decades of the 1950s, 1960s and 1970s, but finally couldn't survive here? When most reference books give the range of a species, they tend to imply a static situation–once a species is recorded as a spot on a map, that it will always be there–and that our field collecting and explorations should try to document the further spread and expansion into new areas. Mention is seldom made that ranges and distributions are tentative, and that indeed some species have pushed too far north, for instance into really unfavourable areas for them, and that in consequence they will not survive there indefinitely.

As the drying out continues over the next decade, more and more species may constrict their present ranges. With future return of wetter years, they will resurge and spread their geographic ranges again. The study of butterflies can possibly be used as an index, or at least an adjunct, demonstrating climate change. To the weather people, this can be called the "Lepidoptera Effect."

1. KLOTS, A.B. 1951. A Field Guide to the Butterflies. Houghton Mifflin, Boston.

- *Walter Krivda*, Box 864, The Pas, Manitoba R9A 1K8



Common Roadside Skipper

Juhachi Asai

LAZULI BUNTING IN SASKATOON

The letter about a Lazuli Bunting in the September 2002 issue of *Blue Jay* prompts me to report my observations of a Lazuli Bunting in my backyard in the Lakeview area of Saskatoon. I first observed the bird around 8 pm on 31 May 2002. I then saw it five separate times between 8:35 am and 6:45 pm the following day. I took several photos of it with my digital camera but unfortunately for some reason they are all out of focus. Nevertheless, the bird can still be positively identified as a Lazuli Bunting. I have put two of the pictures on my website:

http://members.shaw.ca/peteros/birds/LABU_7119.jpg

http://members.shaw.ca/peteros/birds/LABU_7121.jpg

- *Peter Hardie*, peteros@shaw.ca

EURYCEA TRIDENTIFERA

Poem by Mark Abley

A salamander, off-white, found
only in Honey Creek Cave
with remnant, atrophied eyes,
its home a void of light–
should anybody care if
the slippery creature dies?

No economic value,
not the future of the genus:
one of nature's small
astonishments, a blind
perpetual swimmer with
what my *Audubon* calls

a "snout depressed abruptly"
below the dissolving bedrock,
the persimmon-dotted hills...
No telling what it perceives.
If a city drained the aquifer
or some genius blasted the hell

out of Honey Creek and sent
its dwellers to kingdom come,
why grieve for a minute?
–Just the feeling, I imagine,
that this earth no longer belongs
to the wild things in it

and they vanish one by one,
hour by hour, pale morsels
of flesh that can hardly dream
what the world has swallowed up
since a few intrepid ancestors
made a cave their home.

Mark Abley, 2001. Dissolving Bedrock. OVER THE MOON, Outremont, PQ

NATURE LIBRARY

THE SITE: A PERSONAL ODYSSEY

ROBERT NERO. 2001. Natural Heritage Books, Toronto. xii + 95 pp., 22 b/w photographs. 1 map. ISBN 1-896219-70-5.

For anyone who has ever read Bob Nero's works, this slim volume will be a trip down memory lane. It contains many reminiscences of his full life including zoology, birds, family, archaeology and poetry. In his life he was fortunate to be able to link his interests in various disciplines; while a trained and very keen biologist/zoologist, he still managed to make the time for his interest in pre-contact North American history, better known as archaeology.

After serving in WWII, Bob completed his university studies in Wisconsin supported by the G. I. Bill. The 1950s was a time of rapid expansion in North American scientific research and the study of animals, birds and environment was gaining momentum. It was also a time when the discipline of archaeology was on the cusp of great things–truly an exciting time to be a young man with an insatiable curiosity about the world.

A few classes in archaeology during Bob's college years kindled an interest in archaeology that stayed with him beyond his working years. He managed to luck into almost every major discovery of his time, working on rock shelters, Hopewell Mounds, Old Copper sites, burials and later, the scattered remains of Canadian plains occupations. His tales of his excavations reads like a "Who's Who" of the early archaeologists: Wormington, Forbis, Wittry and Phillips in the United States; Boyd Wettlaufer, J.V. Wright and William Mayer-Oakes in western Canada.

Nero tells of his arrival in Regina in July 1955 to take up duties at the Museum of Natural History (now known as the Royal Saskatchewan Museum). There he met the Kehoes, who were beginning their duties as the first provincial archaeologists–Tom with a master's degree and his wife Alice, with a Ph.D (hiring women into top positions just didn't happen in those days).

In his book, Bob takes the time to praise other amateurs who, like himself came from other callings, bringing with them their own particular skills and ideas. I refer to Bruce McCorquodale, a paleontologist, and Allan Hudson, a Moose Jaw area farmer and father of John Hudson, a retired Ceramics Engineer and an amateur botanist of renown in Saskatchewan. These men are credited with distinct contributions to archaeology in Saskatchewan.

Professional archaeologists say that "most of the significant finds are made by ten-year-old sharp-eyed children." Bob's wife, Ruth, accompanied her husband on many of his jaunts and brought their growing family into his circle of interest, thus providing five extra pairs of sharp eyes.

It seems fitting that Bob's most absorbing, and perhaps final, interest in archaeology, would be in the long term recording of an Oxbow or middle-period site in Manitoba, not far west of Winnipeg, where he has made his home for decades. The site, a blowout or dish-shaped hollow in very sandy soil, became almost an obsession. True to his observance of scientific procedures, he took out an amateur permit from the Manitoba government,

naming the find the Hacault Site. Limited excavations helped him put together a remarkable collection from the site. A few illustrations would have been helpful here of tools and point types and a Borden number would have been useful for identification of the Hacault Site.

The author has sprinkled his own inner thoughts throughout the book as poetry. They lend a depth to some of his experiences. And, as with his other interests, his family has carried on the tradition, with several of their poems included in the text.

Read Bob Nero's book. It is a great way to spend a quiet afternoon, to reflect on your own life and to share in Bob's experiences over many years.

Reviewed by Muriel Carlson, Box 39, Livelong, SK S0M 1J0



WHERE THE RIVER RUNS

VICTOR CARL FRIESEN, 2001. Fifth House Ltd., Calgary. 480 pp. illus. Soft cover $21.95 Can. ISBN 1-894004-77-9

Where the River Runs, subtitled Stories of the Saskatchewan and the People Drawn to Its Shores, is at once a book of geography, history and a collective biography. Of the forty chapters, 25 are biographical. The region covered is "the area between the rivers and the adjoining region on either side...known locally as the 'Saskatchewan Valley'...The total area encompassed is roughly toque-shaped, having a base of forty miles across and, skewed to the right, a rounded tip at Fort à la Corne, a dozen miles beyond The Forks." (p. 14)

The book consists of two parts. Part One–Furs and Adventurers–introduces us to the valley's geological and aboriginal past and is followed by a fascinating series of stories about early explorers, fur traders, surveyors, naturalists, geographers, big game hunters, tourists and even an artist. Names come up that most of us know: David Thompson, who left his name to a river, John Richardson (close friend of arctic explorer Sir John Franklin) who left his name to our prairie gopher; all together more than a dozen travellers who kept journals. The rivalries between the fur trading companies and the building of posts and forts make for good reading.

Part Two–Surveys and Settlements–deals again with remarkable people: the famous John Palliser; James Nisbet, missionary and promoter of agriculture; Gabriel Dumont and Louis Riel and their battles at Duck Lake, Fish Creek and Batoche; the men of the steamboat era; folk hero Almighty Voice; and the settlers of the valley belonging to various ethnic groups.

You can read any chapter of *Where the River Runs* on its own as you would read a short story. The opening paragraphs of each chapter capture your interest and point the way to the main theme; the final paragraphs summarize the material and satisfy you as to what you have just absorbed.

You will find many curious and amusing facts in this book—that Henry Kelsey wrote his first diary in verse; that the Red River carts fanned out rather than followed one track; that at one time there were six different companies trading at Peter Pond's fort; that the staff at Fort Carlton managed

to store 800 buffalo carcasses after the spring thaw; that the fur traders got dressed in their best before arriving at a fort and that Paul Kane had to move quickly after trying to sketch a wounded buffalo.

Where the River Runs may inspire you to consult the original sources of the traders' and travellers' journals, cited within the text. There are fine end notes that even the casual reader will occasionally look up and the more serious reader will surely consult. Friesen supplies an impressive bibliography of historical works, and two others he calls scientific/nature and literary/art. Although the text ends at 445 pages, the notes and bibliography add an additional 26 pages. There is also an extensive index of names and places.

Where the River Runs is a long work with material lovingly amassed over a number of years. Friesen describes it as "a new packaging of materials pertaining to a specific area not gathered in one volume before" (p. 5). Such a work should not (ideally) be limited by budget constraints which affect the print and the number of illustrations. The coloured paper cover is very attractive; all else is black and white. There are six maps which are absolutely essential, a picture before Parts 1 and 2, a small picture on the title page, and a little scene (the same one) before each chapter.

Unless you are an expert on the subject of this book, and you need not be, the general impression you will come away with is amazement at the number of trading posts and forts that stood along the two rivers; the extent of the fur trade and the pemmican trade; and, most of all, the extent of travel in all seasons by early explorers and travellers and scientists—sometimes for years at a stretch and for thousands of miles. Every reader will be struck, perhaps for the first time, by the fact that the "valley" between the two rivers is a genuinely historic place. This well-crafted story of the two rivers and the people whose lives are connected with them recommends itself as a gift at any season.

Reviewed by Evelyn Chapuis, 2125 - 6 Avenue West, Prince Albert, SK S6V 5K7

BOLT FROM THE BLUE: WILD PEREGRINES ON THE HUNT

DICK DEKKER, 1999. Hancock House Publishers Ltd, Surrey, B.C. 192pp. Soft Cover $19.95

This book is a popular account of field observations of peregrines in the wild by an incredibly focussed individual. Dick Dekker's interest in the peregrine dates back to his days as a boy in Holland and a chance observation of an attack on a Smew. For many people interested in natural history, early experiences seem to have a lasting impact on their lives. In Dekker's case, the "thrill of the sighting almost made me fall off my bike" and led to a lifetime of observations of peregrines that are truly unparalleled.

The book contains fourteen chapters, ten of which are primarily dedicated to accounts

and discussion of hunting flights and the evasive behaviour of prey. Both successful and unsuccessful flights are described and an attempt is made to analyse what determines whether the prey escapes or becomes a meal. Although this is the major focus, the book also contains chapters on other aspects of the life of the peregrine including migration, nesting, the captive breeding and reintroduction effort, and interactions with other species, which form a good introduction to the bird for the uninitiated.

Three chapters are devoted primarily to observations of hunting flights seen each year from 1969 to 1983 when Dick spent 4 weeks (taking a holiday from work!) during the height of spring migration at Beaverhills Lake. Another three chapters are devoted to observations made of falcons wintering along the coast of British Columbia where Dick spent a few weeks each year starting in 1980. Chapter 8 describes a ten-day stay he made in 1995 on Langara Island watching nesting peregrines with Wayne Nelson. These large Peale's peregrines hunted seabirds on the open ocean, forming an interesting diversion from the flights at shorebirds and ducks that are the majority of his observations. Likewise, the chapter on the family group nesting at Wabamun Lake in central Alberta shows a different side to the hunting techniques used by the adaptable peregrine. This chapter includes some very interesting accounts of tandem hunting by the adult pair and accounts of the adults "training" the young to hunt, which are especially interesting.

Getting an appropriate "search image" for a particular species takes time and experience. The first spring, the number of peregrines Dick saw could be counted "on one hand". His abilities improved rapidly reaching an astounding 163 sightings in 1977! His seasonal *average* for the last ten years at Beaverhills was 75 falcons. Most birdwatchers in North America consider themselves lucky if they see one or two peregrines a year unless they happen to visit one of the major migration concentration areas or visit an active eyrie. Many have never had the privilege of witnessing a single hunting attack by a large falcon. This perhaps puts into perspective the more than 2,000 individual hunts by peregrines amassed by Dick, the majority of which were birds seen during migration or on wintering grounds. Scanning empty skies for hours or even days at a time or keeping a perched peregrine in binocular view for hours with the hope (often futile) that a hunting attack will be initiated, requires a patience and single-mindedness that few possess.

Dick's abilities to spot falcons, often at great distance, and to interpret the action that often takes place in only a matter of seconds when a peregrine makes an attack on prey, are certainly extraordinary. Gordon Court, a peregrine afficionado of some note, once accompanied Dick to one of his favourite spring haunts, for a bout of peregrine watching. His unsuccessful effort to spot a soaring peregrine being watched by Dick led to some scepticism, until Dick shouted "It's stooping! Watch the lake! Watch the ducks!". The explosion of ducks and shorebirds scattered by the finally visible "bolt from the blue" made him a believer. In his Foreword, Gordon states that Dick's abilities to find and watch hunting falcons "remains the most impressive example of natural history observation that I have witnessed in my twenty years as a field biologist". Dick's abilities are all the more unusual given the fact that he has poor eyesight and does most of his scanning and observations through field glasses, often at distances of one or more kilometres.

A bonus of this book is the thirty-two-page colour section full of great photographs, mostly by Gordon Court, which includes an action shot of a peregrine attacking a flock of wigeon. There are also several photos by Dick Dekker that depict some

of the habitats where the peregrines were observed as well as some shots of prey killed by the falcons.

Dekker has an excellent command of the language and many passages are almost poetic, with beautifully painted word-pictures that conjure up the scene in which the action transpires. For some readers, an entire book focussed primarily on observations and conjectures on the hunting flights of a single species of raptor might be a bit overwhelming. For raptorphiles or serious students of natural history, however, the book is excellent—filled with insights into the hunting strategies of one of our most glamorous birds of prey that can only be gleaned from long, attentive hours in the field.

Reviewed by Lynn Oliphant, Box 80, Site 600, RR6, Saskatoon, Sk. S7K 3J9



BIRD-BLOSSOMS

Poem by Jean MacKenzie

Were you called Aquilegia
by a bird watcher
who thought your spurs
resembled the talons
of an eagle?

Both are curved.
Your sole similarity
to that aggressive bird.

Was your other Latin name, Columbine,
given by a different bird lover
who, in imagination,
saw your inverted flower
as a cluster of five doves?

A better simile.
Both seem soft and gentle,
closer in personality.

The ancient Romans are said
to have compared your flowers
to birds scattering upward.

An appealing poetic description.

Tiny birds of many shades,
some of one pure colour–
white, pink, red, blue, purple;
some with pale-yellow heads
but wings and tails of coral.

Tiny bird-blossoms,
tethered by long stems
to graceful branching plants
with blue-green foliage
of deeply-notched leaves.

Tiny bird-blossoms,
with many stamens, five sepals,
five petals ending in spurs,
holding nectar much-loved
by bumblebee and hummingbird.
Unluckily, so favoured
by lace-making miners
which draw squiggly lines,
winding white trails,
inside the tender leaves.

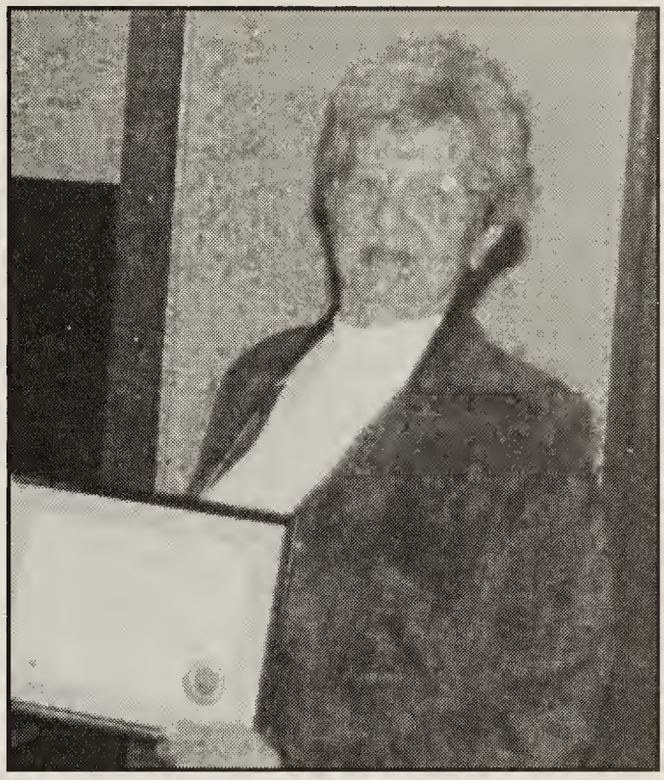
Falling from the five follicles,
erratic black seeds wait till summer
to surprise the gardener
with different coloured blooms
than the parent plant.

Light-hearted,
carefree-spirited,
mischievous seeders,
dainty dancers,
Hummingbird-flowers.

Jean MacKenzie, 2002. An Exhilaration of Flowers. Nature Saskatchewan, Regina.

NATURE SASKATCHEWAN NEWS

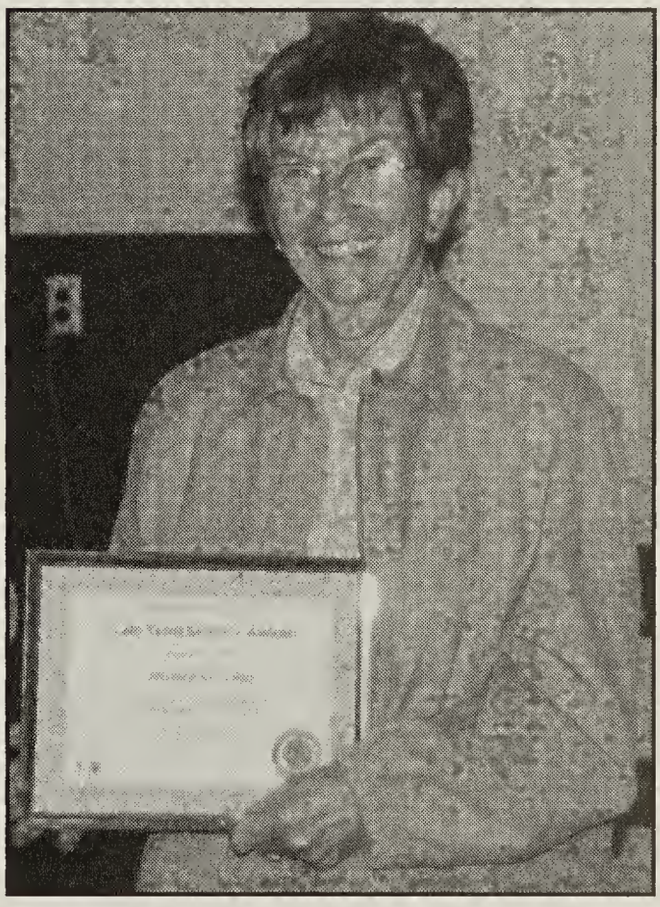
At our Fall Meet, Nature Saskatchewan had the privilege of presenting the following annual awards to a group of dedicated volunteers. The **Larry Morgotch Award** was given to Lorne Scott for spinning an interesting tale from a few beautiful photos of Naturalizing Through a Living Room Window. Paul Geraghty received the **Cliff Shaw Award** for his field sketches that have appeared in recent issues of *Blue Jay* (see text below). The **Volunteer of the Year Award** was given to both Attila Chanady (current Conservation Director) and Diether Peschken (current Second Vice-president and former Research Director) for their collaborative work on Nature Saskatchewan programs and advocacy. Paule Hjertaas was made a **Fellow of the Society** for her many years of dedicated and passionate volunteer service including a long stint as Nature Views editor, and being President, Member-at-large and holding other volunteer positions over the years. The **Conservation Award** was presented to Eleanor Bowie by Attila Chanady (see text below).



NS volunteer Kathy Fellner

Margaret Skeel

Diana Bizecki Robson (Past President) created a new Nature Saskatchewan award this year. The **Long-term Volunteer Service Award** is designed to honour people who have given sustained, volunteer service to the society for many years. This year, we had the privilege to honour several people: Anna and Ted Leighton for their excellent work on the *Blue Jay* and both Kathy Fellner and Ruth Englund for doing numerous and various jobs for the society over many years.



NS volunteer Ruth Englund

Margaret Skeel

Thanks to all of the volunteers and members of the society who have helped keep the society running for more than fifty years.

- Michele Williamson, NS President

Conservation Award

Perhaps more than any other single individual, Eleanor fought hard and with great passion to prevent oil and gas development in parts of the R.M of Piapot designated as "environmentally sensitive." She collected data and submitted relevant information to the R.M Council with respect to environmental damage due to industrial activity in the Great Sand Hills. She addressed the annual general meeting of the Saskatchewan Environmental Society, and Nature Saskatchewan's Spring Meet in Leader, and met with government ministers, MLAs and other politicians in Regina. Her presentations were always passionate, but they had entirely rational underpinnings, based as they were on careful research and documentation, displays, maps and other supporting material.

In July the Government decided not to allow a bylaw amendment by the RM of Piapot that would have opened the way to natural gas development in the area. Although at the same time the Government also announced a major review of the 1991 Land Use Strategy for the entire Great Sand Hills, the decision to turn down the Piapot application for rezoning sensitive areas represented a significant victory for conservation. It was also a well-deserved victory for Eleanor.

- Attila Chanady, NS Conservation Director



Michele Williamson presenting award to Anna Leighton.

Margaret Skeel



Attila Chanady presenting Conservation Award to Eleanor Bowie.

Margaret Skeel

Cliff Shaw Award

Although usually given for a written submission of excellence, this year the Cliff Shaw Award went to Paul Geraghty for his field sketches. Paul is able to capture animals and birds in a wonderfully candid, yet artistic way that tells us as much about their behaviour and their appearance. The sketches are full of life and detail, with the immediacy of glimpses we see in nature yet have no way to record except in memory. The natural history value of the sketches goes beyond the fact that they are pleasing to look at and educational: they remind us of the wealth of detail that nature provides to those with a watchful eye, and the time and patience to observe.

- Anna & Ted Leighton, Editors

MYSTERY PHOTO

DECEMBER 2002 MYSTERY PHOTO



Who is this creature eyeing the grassland east of Liebenthal, SK in mid-June?

Photograph by Joanne Marchand

ANSWER TO SEPTEMBER 2002 MYSTERY PHOTO

Several people sent *Blue Jay* correct guesses about September's mystery object: Ruth Griffiths, David Sterling and Ernie Kuyt, gracing us with all sorts of interesting terms for it such as fibrous plate, horny flat knob, nose cone and horny process on the culmen. Spencer Sealy provided readers with the following details about the structure, as well as additional name, "bill horn".



Bill horn shed by an American White Pelican ***Thijs Kuiken***

The object depicted in the September mystery photo is a maxillary horn or bill

horn that was shed from the upper mandible (bill) of a female or male American White Pelican. Unique to the pelicans (Family Pelecanidae), these bill horns are composed of several erect horny plates that develop annually along with the alternate (nuptial) plumage prior to nesting; they are shed around the time the young hatch.[1, 2] Shed bill horns probably drop into the water or to the ground in the nesting colony, in this case on an island in Doré Lake.

The horn apparently serves as a signalling device during and in the aftermath of pair formation.[2, 3] Paired birds aggressively defend potential nest sites within the colony and frequent, vigorous jabs and snappings of the bills bring the bills into contact with one another. The jabs are directed toward the horn on the bill; this "target" structure may reduce the likelihood that the jabbing bills will puncture the fleshy pouch necessary for foraging.[2]

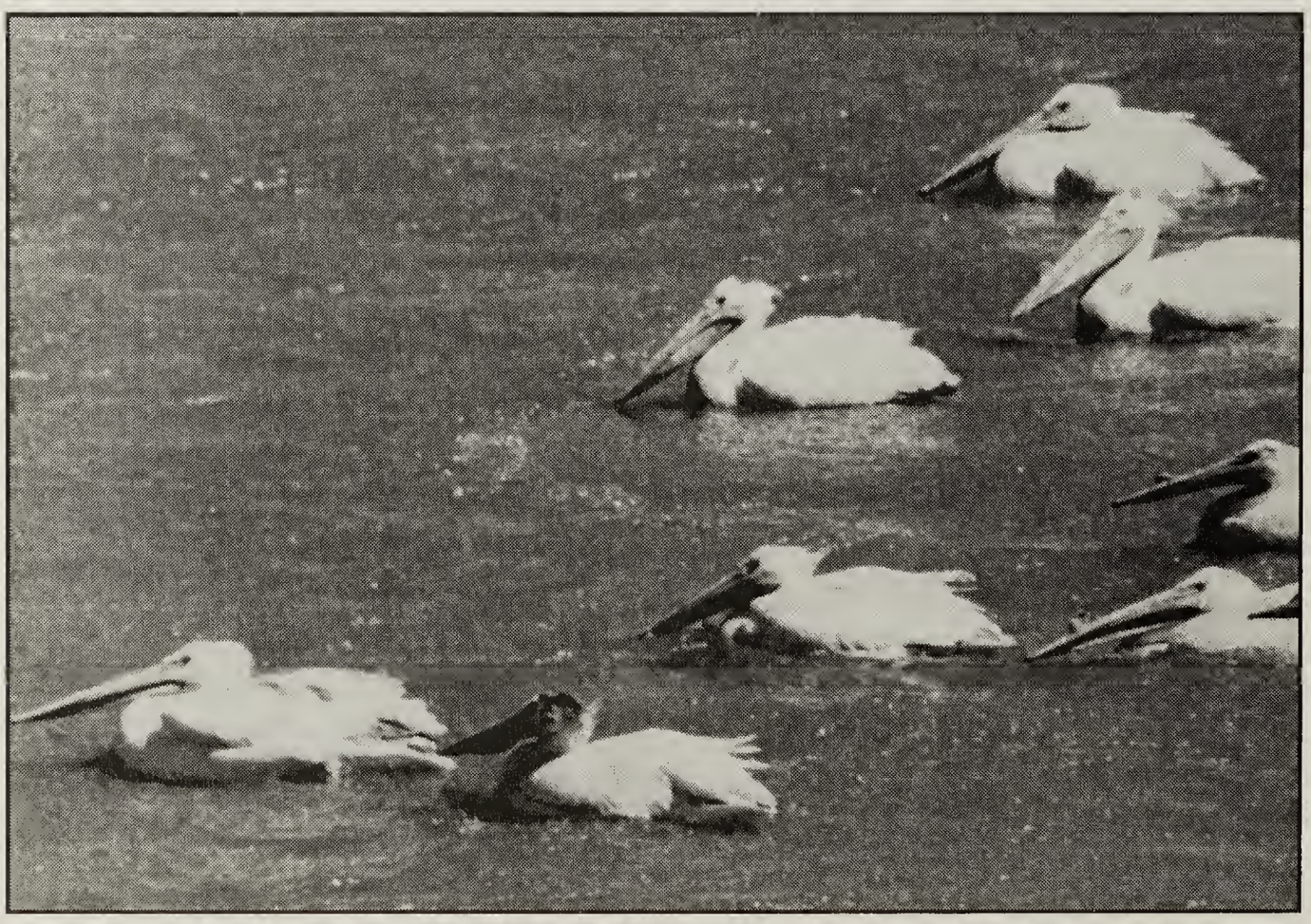
Although the bill horn may be essential for successful nesting, it presents a downside for pelicans in a world altered by humans. While conducting research over the years at Delta Marsh, along the south shore of Lake Manitoba, I have encountered at least three dead pelicans with their bills entangled in discarded commercial fishing nets. Inspection revealed that the birds were caught by netting wound around the bill horns. The nets, draped over a side and back of the birds, impaired their mobility and prevented them from foraging. Death likely came slowly.

1. Campbell, B., and E. Lack (Eds.). 1985. A Dictionary of Birds. T and AD Poyser, Calton.

2. Knopf, F.L. 1975. Schedule of presupplemental molt of White Pelicans with notes on the bill horn. *Condor* 77:356-359.

3. Schaller, G.B. 1964. Breeding behavior of the White Pelican at Yellowstone Lake, Wyoming. *Condor* 66:3-23.

- *Spencer G. Sealy*, Department of Zoology, University of Manitoba, Winnipeg, MB R3T 2N2



Pelicans, several with bill horns ***Frank Switzer***

2002 INDEX TO AUTHORS AND ILLUSTRATORS

Abley, Mark
 Eurycea Tridentifera, poem 227
Adam, Chris
 Photo. Mountain Bluebird nest hole, Rockglen 181
Asai, Juhachi
 Photo. Common Roadside Skipper 227
Beattie, James
 Bluebird Trails of the Southwest Naturalists, note 181
Beyersbergen, Gerard W.
 Photo. Sanderlings at the Quill Lakes in May, December cover
 Shorebird Migration at Luck Lake, SK 99-206
Bolton, Jacqueline
 Bluebird Trails of the Southwest Naturalists, note 181
Bonar, Rick
 What's Going On Here?, note 127
Buckle, Don
 Photo. Burrowing Wolf Spider 59
Carlson, Muriel
 The Site: A Personal Odyssey. NERO, book review 228-229
Carter, Harry R.
 Additional Notes on the Dovekie Specimen from Manitoba 145-149
Chanady, Attila
 Nature Saskatchewan 2002 Conservation Award 234
Chapuis, Evelyn
 Where the River Runs. FRIESEN, book review 229-230
Chytyk, Paul
 Robert Harry Kreba, 1954-2001, in memoriam 124-125
Court, Gordon
 Photo. Long-tailed Weasel 116
Cradock, Pat
 Photo. William Harvey Beck 122
Davis, Bob
 Photo. Mourning Doves 112
Dekker, Dick
 An Observation of Coyotes Killing a Weasel, note 182
 Defensive Behaviours of Long-tailed Weasels, note 115-116
De Smet, Ken
 New Roundleaf Monkey-flower (*Mimulus glabratus*) Occurrences in Manitoba 83-87
de Vries, Bernard
 Photo. Asters 151
Digby, Robin
 Records of Alberta Small Mammals through Analysis of Great Horned Owl Pellets 153-159, 162-168
Doell, Lyle
 Photos. Martin Gérard descending to band Great Horned Owl chicks in previous raven nest 211; Great Horned Owl chicks in previous raven nest under railway bridge 212

Dolman, Teresa
Photo. Fungus Gnat larvae congregation 62, 126
Dommasch, Hans
Photo. Northern Flying Squirrels 226
Engley, Lance
Records of Alberta Small Mammals through Analysis of Great Horned Owl Pellets 153-159, 162-168
Finley, James K.
Human Habitation Enhances Species Diversity: Trends Over Three Decades of CBCs at the Apex of Palliser's Triangle 192-198
Finley, Kim B.
Human Habitation Enhances Species Diversity: Trends Over Three Decades of CBCs at the Apex of Palliser's Triangle 192-198
Fisher, Dennis and Jean
Photo. Osprey on utility pole 82
Flockhart, D.T. Tyler
Photos. Habitat surveyed on Pollard Walk 99, 100; Milbert's Tortoiseshell 106
The Butterfly Fauna of Beaverhill Lake, AB 93-94, 99-106; errata190
Fredeen, F.J.H.
Suggestions for Protecting Lily Blossoms from House Sparrow Attacks, note 56
Friesen, Victor C.
Eastern Phoebe Hanging by a Thread, note 216
Galloway, Terry D.
Getting to Know Your Ticks 107-112
Photo. Male and female American dog ticks, *Dermacentor variabilis* 107
Gehlert, R. E.
Photos. Snow geese silhouetted at sunset, March back cover; Ball Cactus (*Coryphantha vivipara*), June front cover; Ord's Kangaroo Rat 159; Snowy Owl pellet 169; Contents of Snowy Owl pellet 169; Hoary Redpoll, December back cover
Geraghty, Paul
Field Sketches: Night-Heron & Cliff Swallows, Canada Geese, Jack Rabbit 94-98; Mule Deer 150; Immature Great Blue Heron 160-161; Horned Lark & Lapland Longspur 222-223; Muskrat 252
Photos. Digger bee nest holes 126,189; Moving bee and clay turret 190
Hamel, Cary
Additional Roundleaf Monkey-flower Populations in Manitoba, note 224-225
New Roundleaf Monkey-flower (*Mimulus glabratus*) Occurrences in Manitoba 83-87
Photos. Roundleaf Monkey-flower habitat 85, 225
Hardie, Peter
Lazuli Bunting in Saskatoon, note 227
Harms, Vernon L.
Arnicas in Saskatchewan 49-55
Bur Oak - An Uncommon Native Tree in Saskatchewan 87-92
Puccoons in Saskatchewan 216-221
Sketches. Habit sketches of Saskatchewan *Arnica* species 50; Some characteristic features of *Arnica* flowers and heads 53; Various leaf forms of Bur Oak (*Quercus macrocarpa*) 91; Acorns of Bur Oak (*Quercus macrocarpa*) 92; The native puccoon (*Lithospermum*) species in

Saskatchewan 216; Puccoon (*Lithospermum*) flowers (diagrammatic) 218; Typical leaf shapes of puccoon (*Lithospermum*) species in Saskatchewann 219
Where Have All Our Asters Gone? 151-152
Harris, Jean
Photo. Great Horned Owl 153
Harris, Wayne C.
60th Annual Saskatchewan Christmas Bird Count - 2001 2-29
Saskatchewan Christmas Mammal Count - 2001 38-48
Head, Doug
Photos. Leon Pewarchuk and cardboard cutouts 117, 118; Cougar 118
Herriot, Trevor
Rediscovering the Great Plains: Journeys by Dog, Canoe, & Horse. HENDERSON, book review 184-185
Hooper, Ronald R.
A Summary of Saskatchewan Beetles 170-173
Birds of the Qu'Appelle - Second Supplement 64-74
Oak-Feeding Insects in Saskatchewan, note 113
Photos. Leaf Beetle (*Calligrapha verrucosa*) on willow, September back cover; Common Red Lady Beetle, *Coccinella transversoguttata* 170; Long-horned Beetles on rose, upper - *Cortodera longicornis*, lower - *Cyrtophorus verrucosus* 171; May Beetle, *Phyllophaga anxia* 171
Houston, C. Stuart
Early Saskatoon City Bird Banders 79-82
Speedy Migration: Saskatchewan's First Osprey Satellite Transmitter 74-79
Three Turkey Vulture Pairs Nest in Saskatoon Bird Area 206-209
William Harvey Beck, 1927-2002, in memoriam 122-123
Houston, C. Stuart and Mary I.
Rural Banders in the Saskatoon Area 35-37
Houston, Mary I.
A Bad Year for Purple Martins Near Saskatoon 209-210
Hughes, Robert B.
Pink Tree Swallow Eggs, note 174-175
Jeffery, Brian K.
Photo. Burrowing Owl 136
Johnson, Dan L.
Photo. Dragonflies resting out of the sun on a cliff bank at Onefour, Alberta on July 31, 2000 128
Jordheim, Sig
Bird Observations from Kyle, SK, note 182
Krivda, Walter
Common Roadside Skipper Vanishes at The Pas, Manitoba, note 226
European Skipper at The Pas, Manitoba, note 183
Kuiken, Thijs
Photo. Bill horn shed by an American White Pelican 189, 235
Lane, John
Photo. Tree Swallow 175
Larter, Nic
Turkey Vulture in the Western Arctic, note 57-58
Leighton, Anna
Photo. Narrow-leaved Puccoon 221

Leighton, Anna and Ted
Editor's Note 57
Errata 190
Luterbach, Bob
Migrating Winter Wrens - Look in the Woodpile, note 174
MacKenzie, Jean
Bird-Blossoms, poem 232
Marchand, Joanne
Photo. December 2002 mystery photo 235
Martell, Mark
Speedy Migration: Saskatchewan's First Osprey Satellite Transmitter 74-79
Maybank, Blake
Photo. Narrow-leaved (Alpine) Arnica 49
McMaster, Ardythe
Flying Squirrels in Bluebird Nest Boxes, note 225-226
McMaster, Don and Ardythe
Cougar Photographed near Treherne, MB, note 117-119
Meyers, Daisy L.
Bullsnake on a Barbed Wire Fence, note 56
Mitchell, Robert A.
Photo. Ruffed Grouse drumming 180
Nero, Robert W.
Unusually Large Plains Garter Snake, note 183
Niederleitner, Joe F.
Photo. Fence which represented a barrier for a Ruffed Grouse 179
Ruffed Grouse Encounters Chain Link Fence, note 178-180
Norton, Michael R.
Photo. Overview of Luck Lake 199
Shorebird Migration at Luck Lake, SK 199-206
Oliphant, Lynn
Bolt from the Blue: Wild Peregrines on the Hunt. DEKKER, book review 230-232
Parent, Gerald J.
A Bad Year for Purple Martins Near Saskatoon 209-210
Pepper, Wayne
A Tale of Two Swamp Pumps, note 176-177
Reimer, Elizabeth
Additional Roundleaf Monkey-flower Populations in Manitoba, note 224-225
New Roundleaf Monkey-flower (*Mimulus glabratus*) Occurrences in Manitoba 83-87
Photos. Roundleaf Monkey-flower 83; Roundleaf Monkey-flower habitat 225
Renaud, Wayne E.
Recent Extra-limital Breeding Records of the Red-necked Grebe in the Rosetown-Biggar District of Saskatchewan 2-29
Richards, Ken
Answer to the June 2002 Mystery Photo 189-190
Rubbelke, Donald L.
Photo. American Water Shrew 113
Salt, Jim
A Magpie Band-Release Project in the Calgary Area, 1949 213-215
Salt, W. Ray
Watercolour. Young male wapiti on a slope in the mist, March front cover

Sayers, Mary Lynn
Lazuli Bunting at Regina, note 182
Scalise, Karyn
Robert Harry Kreba, 1954-2001, in memoriam 124-125
Schowalter, D.B. (Tim)
Records of Alberta Small Mammals Through Analysis of Great Horned Owl Pellets 153-159, 162-168
Scott, Lorne
Photo. Young Black-billed Magpie 213
Sealy, Spencer G.
Additional Notes on the Dovekie Specimen from Manitoba 145-149
Answer to the September 2002 Mystery Photo 235-236
Breeding Status and Notes on Diet of the Northern Saw-whet Owl at Delta Marsh, Manitoba 130-135
Discovery of a 'Lost' Specimen of the American Water Shrew from Churchill, MB, note 113-115
Sheard, John
Lichens of North America. BRODO, SHARNOFF, SHARNOFF, book review 60-61
Skeel, Margaret A.
Habitat Features Important to Burrowing Owl Breeding Success in Saskatchewan 135-145
Photos. NS volunteer Kathy Fellner 233; NS volunteer Ruth Englund 233; Michele Williamson presenting award to Anna Leighton 234; Attila Chanady presenting Conservation Award to Eleanor Bowie 234
Smith, Alan R.
Three Turkey Vulture Pairs Nest in Saskatoon Bird Area 206-209
Stoffel, Marten
First Nesting of Common Ravens in the Saskatoon Bird Area 211-213
Photo. Deserted house location of Turkey Vulture nest near Smuts 208
Three Turkey Vulture Pairs Nest in Saskatoon Bird Area 206-209
Stoffel, Moyca
Photo. Adult Turkey Vulture in attic window of shack near Environ 207
Sutherland, Donald
Flightless Great Horned Owl Survives Three Months, note 177-178
Switzer, Frank
Photo. Pelicans, several with bill horns 236
Terry, Brenton
Photos. Osprey, June back cover; Second story window entrance to Turkey Vulture nest 206; Young Turkey Vulture in defensive posture 207
Tillie, Ron
Robert Harry Kreba, 1954-2001, in memoriam 124-125
Tripp, Wilbur
Photo. Great Horned Owl approaching young with prey, September front cover
Underwood, Todd J.
Breeding Status and Notes on Diet of the Northern Saw-whet Owl at Delta Marsh, Manitoba 130-135
Photo. Northern Saw-whet Owl brood inside nest 131
Ungar, Linda
Snowy Owls Southeast of Regina, note 56-57

Valadke, Andrius
Photos. Red-necked Grebe on nest 31; Nuttall's Cottontail 158
Walton, Kenneth
Lazuli Bunting at Regina, note 182
Wapple, Guy J.
Recent Extra-limital Breeding Records of the Red-necked Grebe in the Rosetown-Biggar District of Saskatchewan 2-29
Wapple, Robert A.
Recent Extra-limital Breeding Records of the Red-necked Grebe in the Rosetown-Biggar District of Saskatchewan 2-29
Warnock, Robert
Cornell Laboratory of Ornithology's Birds of North America, CD-ROM Version 3. THAYER, DIEHL, book review 120-121
Habitat Features Important to Burrowing Owl Breeding Success in Saskatchewan 135-145
Weaselhead Preservation Society
Photo. What is Going On Here? 9, 127
Williamson, Michele
Nature Saskatchewan 2002 Awards 233
Wittner, Diane
Photo. Turkey Vulture at Rockyview Wildlife Recovery Centre 59
Wooding, Lois A.
William Antony Swithin Sarjeant, 1935-2002, in memoriam 186-188

2002 SUBJECT INDEX

Alberta
Beaverhill Lake
The Butterfly Fauna of Beaverhill Lake, AB FLOCKHART 93-94, 99-106; errata 190
Arachnids
Identification
Getting to Know Your Ticks GALLOWAY 107-112
Birds
Banding and Tagging
A Magpie Band-Release Project in the Calgary Area, 1949 SALT 213-215
Early Saskatoon City Bird Banders HOUSTON 79-82
Rural Banders in the Saskatoon Area HOUSTON, HOUSTON 35-37
Behaviour
A Tale of Two Swamp Pumps PEPPER 176-177
Bird Observations from Kyle, SK JORDHEIM 182
Ruffed Grouse Encounters Chain Link Fence NEIDERLEITNER 178-180
What's Going On Here? BONAR 127
Breeding Records and Distribution
Breeding Status and Notes on Diet of the Northern Saw-whet Owl at Delta Marsh, Manitoba UNDERWOOD, SPENCER 130-135
Recent Extra-limital Breeding Records of the Red-necked Grebe in the Rosetown-Biggar District of Saskatchewan RENAUD, WAPPLE, WAPPLE 2-29

Counts, Surveys and Checklists
60th Annual Saskatchewan Christmas Bird Count - 2001 HARRIS 2-29
Birds of the Qu'Appelle - Second Supplement HOOPER 64-74
Human Habitation Enhances Species Diversity: Trends Over Three Decades of CBCs at the Apex of Palliser's Triangle FINLEY, FINLEY 192-198
Shorebird Migration at Luck Lake, SK NORTON, BEYERSBERGEN 99-206
Diet and Feeding
Breeding Status and Notes on Diet of the Northern Saw-whet Owl at Delta Marsh, Manitoba UNDERWOOD, SPENCER 130-135
Records of Alberta Small Mammals through Analysis of Great Horned Owl Pellets SCHOWALTER, ENGLEY, DIGBY 153-159, 162-16
Disease and Injuries
Flightless Great Horned Owl Survives Three Months SUTHERLAND 177-178
Habitat
Habitat Features Important to Burrowing Owl Breeding Success in Saskatchewan WARNOCK, SKEEL 135-145
Migrating Winter Wrens - Look in the Woodpile LUTERBACH 174
Identification
Cornell Laboratory of Ornithology's Birds of North America, CD-ROM Version 3. THAYER, DIEHL. Book reviewed by WARNOCK 120-121
Management
Suggestions for Protecting Lily Blossoms from House Sparrow Attacks FREDEEN 56
Migration
Migrating Winter Wrens - Look in the Woodpile LUTERBACH 174
Shorebird Migration at Luck Lake, SK NORTON, BEYERSBERGEN 99-206
Speedy Migration: Saskatchewan's First Osprey Satellite Transmitter HOUSTON, MARTELL 74-79
Nests and Nesting
A Bad Year for Purple Martins Near Saskatoon PARENT, HOUSTON 209-210
Bluebird Trails of the Southwest Naturalists BEATTIE 181
First Nesting of Common Ravens in the Saskatoon Bird Area STOFFEL 211-213
Pink Tree Swallow Eggs HUGHES 174-175
Three Turkey Vulture Pairs Nest in Saskatoon Bird Area HOUSTON, STOFFEL, SMITH 206-209
Particular Species
Accipiter
What's Going on Here? BONAR 127
Bittern, American
A Tale of Two Swamp Pumps PEPPER 176-177
Bluebird
Bluebird Trails of the Southwest Naturalists BEATTIE 181
Bunting, Lazuli
Lazuli Bunting at Regina WALTON, SAYERS 182
Lazuli Bunting in Saskatoon HARDIE 227
Dovekie
Additional Notes on the Dovekie Specimen from Manitoba SEALY, CARTER 145-149

Grebe, Red-necked
Recent Extra-limital Breeding Records of the Red-necked Grebe in the Rosetown-Biggar District of Saskatchewan RENAUD, WAPPLE, WAPPLE 2-29
Grouse, Ruffed
Ruffed Grouse Encounters Chain Link Fence NEIDERLEITNER 178-180
Magpie, Black-billed
A Magpie Band-Release Project in the Calgary Area, 1949 SALT 213-215
Martin, Purple
A Bad Year for Purple Martins Near Saskatoon PARENT, HOUSTON 209-210
Osprey
Speedy Migration: Saskatchewan's First Osprey Satellite Transmitter HOUSTON, MARTELL 74-79
Owl, Burrowing
Habitat Features Important to Burrowing Owl Breeding Success in Saskatchewan WARNOCK, SKEEL 135-145
Owl, Great Horned
Flightless Great Horned Owl Survives Three Months SUTHERLAND 177-178
Owl, Nothern Saw-whet
Breeding Status and Notes on Diet of the Northern Saw-whet Owl at Delta Marsh, Manitoba UNDERWOOD, SPENCER 130-135
Owl, Snowy
Snowy Owls Southeast of Regina UNGAR 56-57
Phoebe, Eastern
Eastern Phoebe Hanging by a Thread FRIESEN 216
Raven, Common
First Nesting of Common Ravens in the Saskatoon Bird Area STOFFEL 211-213
Sparrow, House
Suggestions for Protecting Lily Blossoms from House Sparrow Attacks FREDEEN 56
Swallow, Tree
Pink Tree Swallow Eggs HUGHES 174-175
Vulture, Turkey
Three Turkey Vulture Pairs Nest in Saskatoon Bird Area HOUSTON, STOFFEL, SMITH 206-209
Turkey Vulture in the Western Arctic LARTER 57-59; editor's note 57
Woodpecker, Pileated
What's Going on Here? BONAR 127
Wren, Winter
Migrating Winter Wrens - Look in the Woodpile LUTERBACH 174
Predators and Prey
Bolt from the Blue: Wild Peregrines on the Hunt. DEKKER. Book reviewed by OLIPHANT 230-232
Rarities
Additional Notes on the Dovekie Specimen from Manitoba SEALY, CARTER 145-149
Bird Observations from Kyle, SK JORDHEIM 182
Lazuli Bunting at Regina WALTON, SAYERS 182

Lazuli Bunting in Saskatoon HARDIE 227
Turkey Vulture in the Western Arctic LARTER 57-59; editor's note 57
Rescue and Rehabilitation
Eastern Phoebe Hanging by a Thread FRIESEN 216
Turkey Vulture in the Western Arctic LARTER 57-59; editor's note 57
Book Reviews
Bolt from the Blue: Wild Peregrines on the Hunt. DEKKER. Reviewed by OLIPHANT 230-232
Cornell Laboratory of Ornithology's Birds of North America, CD-ROM Version 3. THAYER, DIEHL. Reviewed by WARNOCK 120-121
Lichens of North America. BRODO, SHARNOFF, SHARNOFF. Reviewed by SHEARD 60-61
Rediscovering the Great Plains: Journeys by Dog, Canoe, & Horse. HENDERSON. Reviewed by HERRIOT 184-185
The Site: A Personal Odyssey. NERO. Reviewed by CARLSON 228-229
Where the River Runs. FRIESEN. Reviewed by CHAPUIS 229-230
Humans
Archaeology
The Site: A Personal Odyssey. NERO. Book reviewed by CARLSON 228-229
Exploration and Travels
Rediscovering the Great Plains: Journeys by Dog, Canoe, & Horse. HENDERSON. Book reviewed by HERRIOT 184-185
Where the River Runs. FRIESEN. Book Reviewed by CHAPUIS 229-230
Impact on Environment
Human Habitation Enhances Species Diversity: Trends Over Three Decades of CBCs at the Apex of Palliser's Triangle FINLEY, FINLEY 192-198
In Memoriam
Robert Harry Kreba, 1954-2001 CHYTYK, SCALISE, TILLIE 124-125
William Antony Swithin Sarjeant, 1935-2002 WOODING 186-188
William Harvey Beck, 1927-2002 HOUSTON 122-123
Insects
Counts, Surveys and Checklists
A Summary of Saskatchewan Beetles HOOPER 170-173
The Butterfly Fauna of Beaverhill Lake, AB FLOCKHART 93-94, 99-106; errata 190
Diet and Feeding
Oak-Feeding Insects in Saskatchewan HOOPER 113
Particular Species
Skipper, Common Roadside
Common Roadside Skipper Vanishes at The Pas, Manitoba KRIVDA 226
Skipper, European
European Skipper at The Pas, Manitoba KRIVDA 183
Rarities
European Skipper at The Pas, Manitoba KRIVDA 183
Lichens
Lichens of North America. BRODO, SHARNOFF, SHARNOFF. Book reviewed by SHEARD 60-61
Mammals
Behaviour
An Observation of Coyotes Killing a Weasel DEKKER 182

Defensive Behaviours of Long-tailed Weasels DEKKER 115-116
Flying Squirrels in Bluebird Nest Boxes McMASTER 225-226
Counts, Surveys and Checklists
Saskatchewan Christmas Mammal Count - 2001 HARRIS 38-48
Distribution
Discovery of a 'Lost' Specimen of the American Water Shrew from Churchill, MB SEALY 113-115
Records of Alberta Small Mammals through Analysis of Great Horned Owl Pellets SCHOWALTER, ENGLEY, DIGBY 153-159, 162-168
Particular Species
Cottontail, Nuttall's (Mountain)
Records of Alberta Small Mammals through Analysis of Great Horned Owl Pellets SCHOWALTER, ENGLEY, DIGBY 155, 158
Cougar
Cougar Photographed near Treherne, MB McMASTER, McMASTER 117-119
Coyote
An Observation of Coyotes Killing a Weasel DEKKER 182
Gopher, Northern Pocket
Records of Alberta Small Mammals through Analysis of Great Horned Owl Pellets SCHOWALTER, ENGLEY, DIGBY 163
Mouse, Northern Grasshopper
Records of Alberta Small Mammals through Analysis of Great Horned Owl Pellets SCHOWALTER, ENGLEY, DIGBY 163
Mouse, Olive-backed Pocket
Records of Alberta Small Mammals through Analysis of Great Horned Owl Pellets SCHOWALTER, ENGLEY, DIGBY 159
Rat, Ord's Kangaroo
Records of Alberta Small Mammals through Analysis of Great Horned Owl Pellets SCHOWALTER, ENGLEY, DIGBY 159, 163
Shrew, American Water
Discovery of a 'Lost' Specimen of the American Water Shrew from Churchill, MB SEALY 113-115
Shrew, Arctic
Records of Alberta Small Mammals through Analysis of Great Horned Owl Pellets SCHOWALTER, ENGLEY, DIGBY 154-155
Squirrel, Franklin's Ground
Records of Alberta Small Mammals through Analysis of Great Horned Owl Pellets SCHOWALTER, ENGLEY, DIGBY 158-159
Squirrel, Northern Flying
Flying Squirrels in Bluebird Nest Boxes McMASTER 225-226
Records of Alberta Small Mammals through Analysis of Great Horned Owl Pellets SCHOWALTER, ENGLEY, DIGBY 159
Vole, Long-tailed
Records of Alberta Small Mammals through Analysis of Great Horned Owl Pellets SCHOWALTER, ENGLEY, DIGBY 163, 165
Vole, Prairie
Records of Alberta Small Mammals through Analysis of Great Horned Owl Pellets SCHOWALTER, ENGLEY, DIGBY 165
Vole, Sagebrush
Records of Alberta Small Mammals through Analysis of Great Horned Owl Pellets SCHOWALTER, ENGLEY, DIGBY 165

Vole, Southern Red-backed
Records of Alberta Small Mammals through Analysis of Great Horned Owl Pellets SCHOWALTER, ENGLEY, DIGBY 163
Weasel, Long-tailed
Defensive Behaviours of Long-tailed Weasels DEKKER 115-116
Rarities
Cougar Photographed near Treherne, MB McMASTER, McMASTER 117-119
Discovery of a 'Lost' Specimen of the American Water Shrew from Churchill, MB SEALY 113-115
Manitoba
Churchill
Discovery of a 'Lost' Specimen of the American Water Shrew from Churchill, MB SEALY 113-115
Delta Marsh
Breeding Status and Notes on Diet of the Northern Saw-whet Owl at Delta Marsh, Manitoba UNDERWOOD, SPENCER 130-135
The Pas
Common Roadside Skipper Vanishes at The Pas, Manitoba KRIVDA 226
European Skipper at The Pas, Manitoba KRIVDA 183
Treherne
Cougar Photographed near Treherne, MB McMASTER, McMASTER 117-119
Mystery Photos
Answers to: December 2001 Mystery Photo 62; March 2002 Mystery Photo 126; June 2002 Mystery Photo 189-190; September 2002 Mystery Photo 235-236
Nature Saskatchewan
Awards and Honours, 2002
Cliff Shaw Award, note by Anna and Ted Leighton 234
Conservation Award, note by Attila Chanady 234
Fellows Award, note by Michele Williamson 233
Larry Morgotch Award, note by Michele Williamson 233
Long-term Volunteer Service Award, note by Michele Williamson 233
Volunteer of the Year Award, note by Michele Williamson 233
Northwest Territories
Turkey Vulture in the Western Arctic LARTER 57-59; editor's note 57
People
Beck, William Harvey
William Harvey Beck, 1927-2002, in memoriam HOUSTON 122-123
Bowie, Eleanor
Nature Saskatchewan 2002 Conservation Award 234
Chanady, Attila
Nature Saskatchewan 2002 Volunteer of the Year Award 233
Early Saskatoon City Bird Banders HOUSTON 79-82
Englund, Ruth
Nature Saskatchewan 2002 Long-term Volunteer Service Award 233
Fellner, Kathy
Nature Saskatchewan 2002 Long-term Volunteer Service Award 233
Geraghty, Paul
Nature Saskatchewan 2002 Cliff Shaw Award 234

Hjertaas, Paule
Nature Saskatchewan 2002 Fellows Award 233
Kreba, Robert Harry
Robert Harry Kreba, 1954-2001, in memoriam CHYTYK, SCALISE, TILLIE 124-125
Leighton, Anna and Ted
Nature Saskatchewan 2002 Long-term Volunteer Service Award 233
Peschken, Diether
Nature Saskatchewan 2002 Volunteer of the Year Award 233
Rural Banders in the Saskatoon Area HOUSTON, HOUSTON 35-37
Sarjeant, William Antony
William Antony Swithin Sarjeant, 1935-2002, in memoriam WOODING 186-188
Scott, Lorne
Nature Saskatchewan 2002 Larry Morgotch Award 233
Plants
Counts, Surveys and Checklists
Additional Roundleaf Monkey-flower Populations in Manitoba HAMEL, REIMER 224-225
New Roundleaf Monkey-flower (*Mimulus glabratus*) Occurrences in Manitoba HAMEL, DE SMET, REIMER 83-87
Identification and Nomenclature
Arnicas in Saskatchewan HARMS 49-55
Puccoons in Saskatchewan HARMS 216-221
Where Have All Our Asters Gone? HARMS 151-152
Particular Species
Arnica, Heart-leaved
Arnicas in Saskatchewan HARMS 54
Arnica, Leafy
Arnicas in Saskatchewan HARMS 53
Arnica, Narrow-leaved or Alpine
Arnicas in Saskatchewan HARMS 52
Arnica, Shining or Orange
Arnicas in Saskatchewan HARMS 54
Arnica, Spear-leaved
Arnicas in Saskatchewan HARMS 54
Arnica, Twin
Arnicas in Saskatchewan HARMS 54
Monkey-flower, Roundleaf
Additional Roundleaf Monkey-flower Populations in Manitoba HAMEL, REIMER 224-225
New Roundleaf Monkey-flower (*Mimulus glabratus*) Occurrences in Manitoba HAMEL, DE SMET, REIMER 83-87
Oak, Bur
Bur Oak - An Uncommon Native Tree in Saskatchewan HARMS 87-92
Puccoon / Gromwell, Hoary
Puccoons in Saskatchewan HARMS 220
Puccoon / Gromwell, Mountain, Columbian or Wooly
Puccoons in Saskatchewan HARMS 220-221
Puccoon / Gromwell / Stoneseed, Narrow-leaved or Fringed
Puccoons in Saskatchewan HARMS 220

Rarities
Bur Oak - An Uncommon Native Tree in Saskatchewan HARMS 87-92
Poetry
Bird-Blossoms MACKENZIE 232
Eurycea Tridentifera ABLEY 227
Reptiles
Anatomy and Physiology
Unusually Large Plains Garter Snake NERO 183
Behaviour
Bullsnake on a Barbed Wire Fence MEYERS 56
Particular Species
Bullsnake
Bullsnake on a Barbed Wire Fence MEYERS 56
Snake, Plains Garter
Unusually Large Plains Garter Snake NERO 183
Saskatchewan
Biggar
Recent Extra-limital Breeding Records of the Red-necked Grebe in the Rosetown-Biggar District of Saskatchewan RENAUD, WAPPLE, WAPPLE 2-29
Kyle
Bird Observations from Kyle, SK JORDHEIM 182
Regina
Lazuli Bunting at Regina WALTON, SAYERS 182
Snowy Owls Southeast of Regina UNGAR 56-57
Rosetown
Recent Extra-limital Breeding Records of the Red-necked Grebe in the Rosetown-Biggar District of Saskatchewan RENAUD, WAPPLE, WAPPLE 2-29
Saskatoon
A Bad Year for Purple Martins Near Saskatoon PARENT, HOUSTON 209-210
Early Saskatoon City Bird Banders HOUSTON 79-82
Lazuli Bunting in Saskatoon HARDIE 227
Saskatoon Bird Area
First Nesting of Common Ravens in the Saskatoon Bird Area STOFFEL 211-213
Rural Banders in the Saskatoon Area HOUSTON, HOUSTON 35-37
Three Turkey Vulture Pairs Nest in Saskatoon Bird Area HOUSTON, STOFFEL, SMITH 206-209

2002 ILLUSTRATION INDEX

All Illustrations are photographs unless otherwise indicated.

Arachnids
Spider, Burrowing Wolf: BUCKLE 59; hole of, 62
Tick, American dog: male and female, GALLOWAY 107

Birds
Accipiter: WEASELHEAD PRESERVATION SOCIETY 9, 127
Bluebird, Mountain: nest hole, ADAM 181
Dove, Mourning: DAVIS 112
Dovekie: collected specimen from Manitoba, 146
Goose, Canada: sketches, GERAGHTY 96, 97
Goose, Snow: GEHLERT March back cover
Grebe, Red-necked: on nest, VALADKE 31
Grouse, Ruffed: fence representing a barrier for grouse, NIEDERLEITNER 179; drumming, MITCHELL 180
Heron, Great Blue: sketches of immature, GERAGHTY 160, 161
Heron, Night: sketches, GERAGHTY 95
Lark, Horned: sketches, GERAGHTY 222
Longspur, Lapland: sketches, GERAGHTY 223
Magpie, Black-billed: SCOTT 213
Osprey: TERRY June back cover; perched on utility pole, FISHER 82
Owl, Burrowing: JEFFERY 136
Owl, Great Horned: approaching young with prey,TRIPP September front cover; HARRIS 153; wing bones, 178; M. Gérard descending to band chicks in previous raven nest, DOELL 211; chicks in previous raven nest, DOELL 212
Owl, Northern Saw-whet: brood inside nest at Delta Marsh, UNDERWOOD 131
Owl, Snowy: pellet, GEHLERT 169; contents of pellet, GEHLERT 169
Pelican, American White: shed bill horn, KUIKEN 189, 235; several pelicans with bill horns, SWITZER 236
Sanderling: at Quill Lakes, BEYERSBERGEN December cover
Swallow, Cliff: sketches, GERAGHTY 95
Swallow, Tree: LANE 175
Woodpecker, Pileated: WEASELHEAD PRESERVATION SOCIETY 9, 127
Vulture, Turkey: WITTNER 59; young vulture in defensive posture, TERRY 207; adult vulture in window of abandoned farmhouse, STOFFEL 207
Habitat
Luck Lake: migratory staging area, NORTON 199
Spring-fed habitat of Roundleaf Monkey-flower: HAMEL 85; HAMEL, REIMER 225
Vulture, Turkey: abandoned farmhouse used as nesting site, TERRY 206; deserted house location of vulture nest, STOFFEL 208
Woods and grasslands surveyed on Pollard Walk: FLOCKHART 99, 100
Insects
Bee, Digger (*Anthophora occidentalis*): nest holes, GERAHGTY 126, 189; moving bee and clay turret, GERAGHTY 190
Beetle, Common Red Lady (*Coccinella transversoguttata*): HOOPER 170
Beetle, Leaf (*Calligrapha verrucosa*): on willow, HOOPER September back cover
Beetle, Long-horned (*Cortodera longicornis* and *Cyrtophorus verrucosus*): on rose, HOOPER 171
Beetle, May (*Phyllophaga anxia*): HOOPER, 171
Dragonflies: resting on cliff bank, JOHNSON 128
Gnat, Fungus: congregation, DOLMAN 62, 126
Skipper, Common Roadside: ASAI 227
Tortoiseshell, Milbert's: FLOCKHART 106

Mammals
Cottontail, Nuttall's: VALADKE 158
Cougar: HEAD 118; cardboard cutouts, HEAD 117, 118
Deer, Mule: sketches, GERAGHTY 150
Muskrat: sketches, GERAGHTY 252
Rabbit, Jack: sketches, GERAGHTY 98
Rat, Ord's Kangaroo: GEHLERT 159
Shrew, American Water: RUBBELKE 113
Squirrel, Franklin's Ground: partially eaten body and owl pellet containing parts of squirrel, 158
Squirrel, Northern Flying: DOMMASCH 226
Wapiti: watercolour, SALT March front cover
Weasel, Long-tailed: COURT 116
Mystery Photos
Bill horn from American White Pelican: KUIKEN189, 235
Burrowing Wolf Spider hole: 62
Digger bee nest holes: GERAGHTY126, 189
Fungus Gnat larvae congregation: DOLMAN 62, 126
People
Beck, William Harvey: memorial, CRADOCK 122
Bowie, Eleanor: receiving Conservation Award from Attila Chanady, SKEEL 234
Chandady, Attila: presenting award to Eleanor Bowie, 234
Englund, Ruth: NS volunteer, SKEEL 233
Fellner, Kathy: NS volunteer, SKEEL 233
Kreba, Robert Harry: memorial, 124
Leighton, Anna: receiving award from Michele Williamson, SKEEL 234
Sarjeant, William Antony Swithin: memorial, 186; measuring reptile prints, 188
Siemens, Phillip: bird bander, 35
Williamson, Michele: presenting award to Anna Leighton, SKEEL 234
Plants
Arnica: Narow-leaved (Alpine), MAYBANK 49; habit sketches of Saskatchewan *Arnica* species, HARMS 50; sketch of characteristic features of *Arnica* flowers and heads, HARMS 53
Aster: DE VRIES 151
Cactus, Ball: GEHLERT June front cover
Monkey-flower, Roundleaf: REIMER 83
Oak, Bur: sketch of leaf forms, HARMS 91; sketch of acorns, HARMS 92
Puccoon: sketch of native Saskatchewan species, HARMS 216; sketch of flowers, HARMS 218; sketch of leaf shapes, HARMS 219; Narrow-leaved, LEIGHTON 221



● Dec 13 '98 → +5° breezy from SW.





MUSKRAT MJ Dam Pool

7 Crayfish in succession. 2½ → 4 inches long

Dive off ice, gone underwater for 6 → 10 secs, once to 20 secs, Then resurfacing a foot or so from ice, & previous 'perch', c a crayfish in mouth. Mrat hauls out & drops crayfish. (Once or 2ce rubbed muzzle c paws) Then picks up slowly moving (not walking) crayfish apparently holding claws to shell & begins rapidly gnawing. Would pick up dropped bits, greasy (appx) c lower incisors on eat off carapace held in paws. Pat around for missed morsels (dropped) after main meal (à la MINK) Maybe 5 mins to eat meat + (?) softer bits of shell underside (?) Mrat (unlike Mink) didn't shake on emerging from lèau (not cold ?) lower parts spikey.

After eating would leisurely scratch torso back c hind left, then right, "stare" at water for 5-10 secs, then dive in

MEMBERSHIP APPLICATION FORM

☐ New Member ☐ Renewal

Name (please print)

Address

City Prov Postal Code

Phone Fax E-Mail

☐ Change of Address: Please write in new address above

☐ Gift Membership:

Name (please print)

Address

City Prov Postal Code

Phone Fax E-Mail

Category	**One Year**	**Three Year**	**Five Year**
Individual	☐ $25	☐ $65	☐ $95
Family	☐ $30	☐ $75	☐ $115
Student	☐ $15		
Senior (>64 years)	☐ $20	☐ $50	☐ $75
Outside Canada	☐ $30	☐ $75	☐ $115
Life	☐ $600		

I wish to make a tax creditable donation to Nature Saskatchewan:

☐ General Society Programs $ _____ ☐ Endangered Species Fund $ _____

☐ Education Fund $ _____ ☐ Research Programs $ _____

☐ Habitat Conservation Fund $ _____ ☐ Last Mountain Bird Observatory $ _____

☐ Grasslands Trust Fund $ _____

SPECIAL OFFER to join our national affiliate, the Canadian Nature Federation.
With every CNF membership purchased through Nature Saskatchewan, CNF will donate $4 to the Grasslands Trust Fund. Membership benefits include quarterly issues of the award-winning nature magazine *Nature Canada* and the conservation newsletter *Nature Alert*.

☐ Individual $35 ☐ Family $42 ☐ Send information on CNF

Fee Total

Nature Saskatchewan Membership $ _____

Nature Saskatchewan Donation $ _____

Canadian Nature Federation Dues $ _____

TOTAL $ _____

I would like to pay by: ☐ Cheque ☐ Visa ☐ Mastercard

Cardholder's Name: _____

Credit card number __/__/__/__/__/__/__/__/__/__/__/__/__/__/__/__

Expiry date __/__/ __/__/ Signature _____

Make cheques and money orders payable to NATURE SASKATCHEWAN.

Mail to: Nature Saskatchewan
206 - 1860 Lorne Street
Regina, Saskatchewan S4P 2L7

**** Do you know*** of any person interested in natural history and conservation who does not receive the *Blue Jay*? Please send their name and address and we will send a sample *Blue Jay* and an invitation to join our Society.

Renew by Phone!
Call toll-free: 1-800-667-4668 (Saskatchewan only) or (306) 780-9273
Fax (306) 780-9263
to renew by Visa or Mastercard



Publication Sales Agreement No. 4006301
Postage paid at Regina
Please return unclaimed copies
Return postage guaranteed

206 - 1860 Lorne Street
Regina, SK S4P 2L7

12/21/03 MM2990(H)
University of Alberta Library Fib
5th Floor Cameron
Edmonton AB T6G 2J8